BRITAIN'S LEADING MAGAZINE FOR THE AMSTRAD CPC 464, 664 AND 6128

No.31 APRIL 1988 £1.25

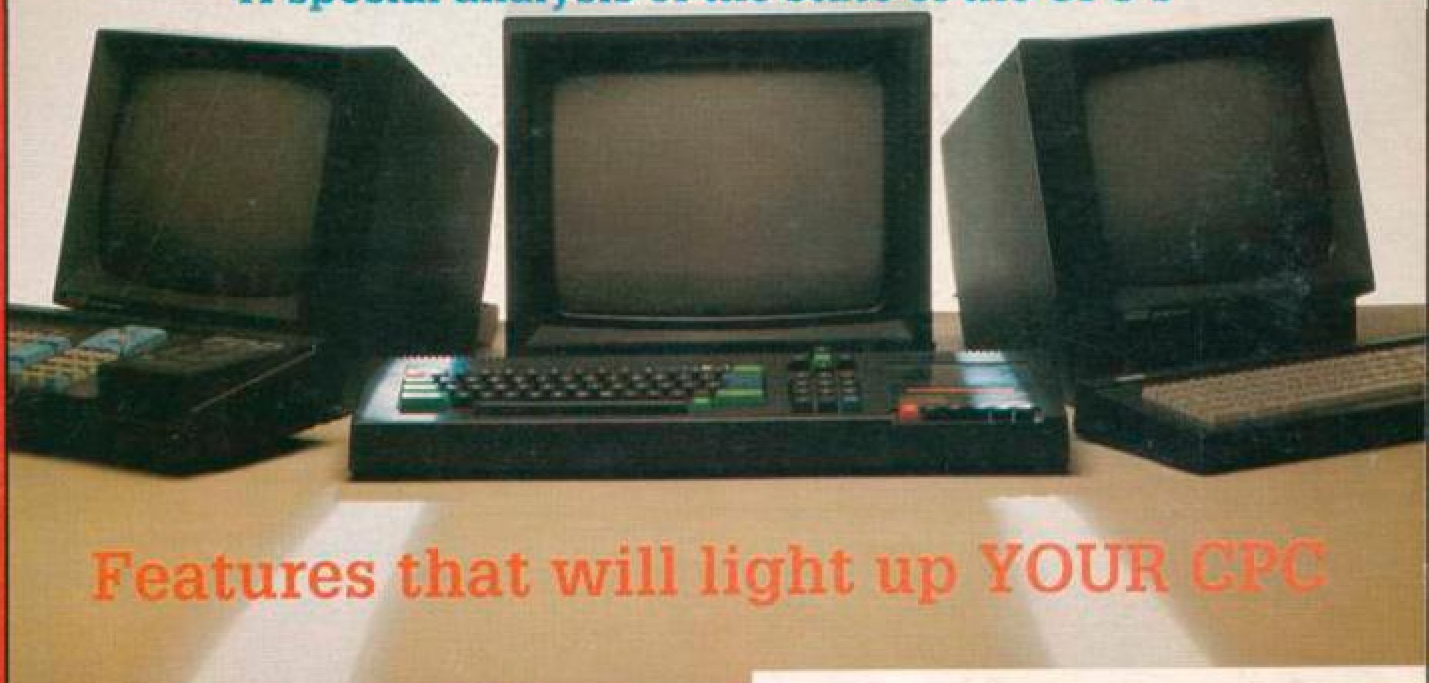
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AMSTRAD ACTION

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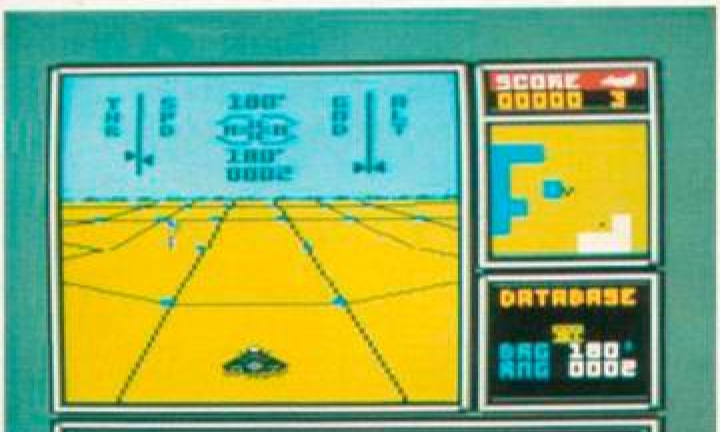
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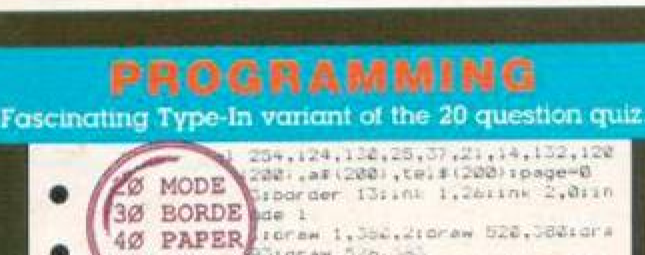


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Amstrad's newest printer reviewed.

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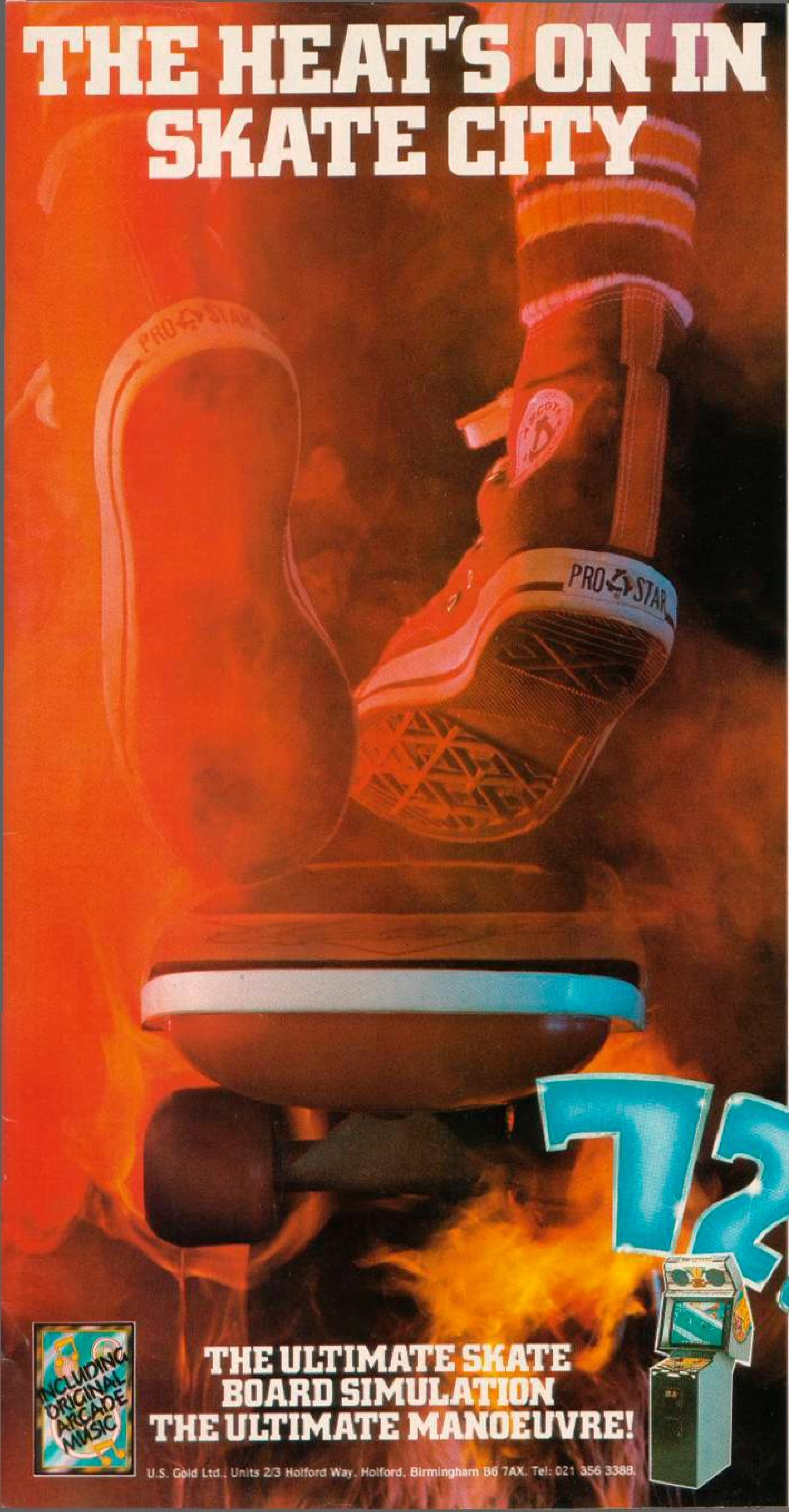




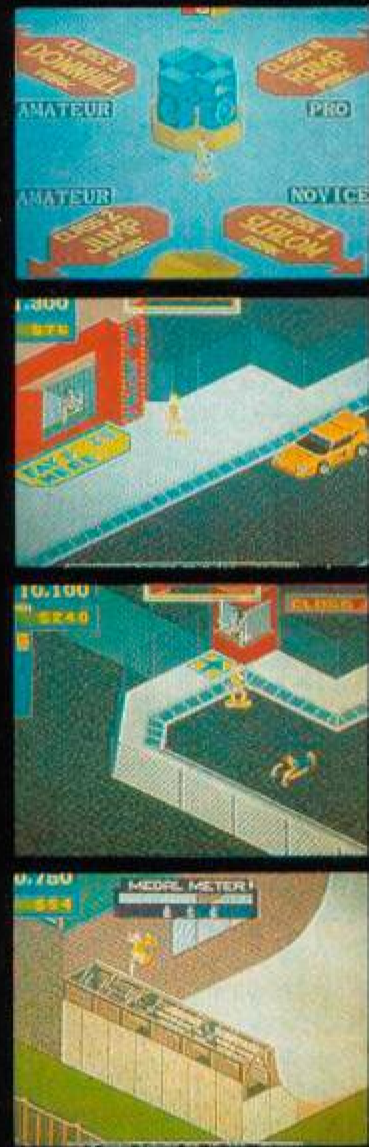
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THE LINE-UP

AMSTRAD ACTION APRIL 1988

INTERACTION

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WRAPPING UP

THINGS TO BUY • BYE

Shelf Help

In our feature on the current health of the CPC's, David Ward, Chairman of Ocean, reveals his plans for extending the shelf-life of computer games. In the past games have had a shelf-life of a matter of weeks, placing immense demands on the programmers and software houses to produce them quickly. This inevitably leads to rushed jobs, missed deadlines and great disappointment from the public at the results.

Ward's commitment to spend more time developing fewer games each year is marvellous news, and shows the way for the rest of the industry. Reducing the number of titles produced and increasing their quality will please everyone: software houses, because they can concentrate their efforts and maximise sales; distributors and chain stores, because they'll have fewer titles to handle and no cheap "dumping" of old software; and most importantly the public, because they should get much improved game quality and less agonising decisions about which ones to choose.

All this may sound like so much marketing hype to you, so the proof of the pudding is going to be in the gameplay. Ocean's recent titles have shown consistently high quality and soon-to-be-seen titles like Platoon should also reflect the increased effort.

In the long run it's not just shelf-life that has to be extended but game-life as well –The two go hand in hand. Let's hope the rest of the software giants follow Ward and Ocean's lead for forming a bright, and long lived, tomorrow.

Bob

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REACTION

The section where you get your say about AA. Libel suits, love letters, letter bombs and all other reactions are dealt with by Bob Wade – so treat him gently. The address to send your letters to is: Reaction, Amstrad Action, 4 Queen Street, Bath BA1 1EJ. Remember we can't reply personally to letters, otherwise we wouldn't have time to produce a magazine each month. All mail-order and subscription enquiries or problems should be aimed at our Somerton address listed on Line-up - we just have to pass them on if they come here.

Transfer troubles

I have an Amstrad CPC 664 and have to load tapes using an external tape-deck. My problem is that when I load, for instance, *The Duct* into my computer, the game works perfectly but I cannot save the game or utilities onto disk – even though you state these programs are easily transferred to disk. I have gone through the user manual plus your instructions but no luck on saving to disk.

Stuart McIntosh
Glasgow

You need to use the utility on the tape called On-Disk. All you have to do is load this program up and follow the instructions for loading and saving each of the other programs. You'll find On-Disk straight after The Duct *on the tape.*

Dad's duff deck

My Amstrad CPC 464 has refused to load almost all my tape software for approximately five months now. Please can you tell me where I can get it repaired?

I have decided the problem could be one of three faults:

a) a worn out pinch head (possibly due to over zealous head cleaning).

b) a drive motor fault.

c) stretching in the loop of rubber driving the heads.

I realise that b) will probably cost a lot but at present I don't have the funds for a disk drive. Since the machine is actually my parents, I feel some guilt at the fact that it is probably my excessive, and at times less than careful, use of the machine that has caused this problem.

One other quick point: will the interface you featured in Chip Chat, in the December '87 issue, work with a Teletype? (Teletype 33 manual, says it's a Westrek 770 on the front).

Duncan Ball
Malvern Link

If the place you bought your 464 from doesn't do repairs, there are several options open to you. Look in computer mags for ads from repair shops near you. Check out Yellow Pages for the same. Alternatively contact Amstrad direct (0277 228888) and let them do it – particularly recommended if it's still under guarantee.

As far as we know the serial interface, which the article showed how to build, does not work with a Teletype. Maybe someone knows of something that does?

My brain hurts

I thought I would try to explain the radiation from our monitors that gives some people headaches. The way we see things is fairly simple – light falls on the back of our eyes (the retina) and is interpreted by the brain. However, there is something called "persistence of vision". This means that if you look at something bright for a short time and then close your eyes, you will still be able to see the light afterwards. As most people know, televisions are not moving pictures but are in fact many pictures being shown one after another to give the effect of movement (about 50 pictures per second are shown).

However, the pictures appear to move as our eyes can only detect flashes of 25HZ or less. The brain still knows that the picture is flashing and it is this continual annoyance that causes headaches and sore eyes. Fluorescent lights also cause this to happen but less frequently as they flash about 100 times per second. Perhaps someone who has a screen filter would like to comment on how effective they are. The only explanation I can think of for the filter to work, is for it to cut down on flicker. Incidentally, for those who may wonder why headaches are not caused by televisions but are by VDU's: think how close you sit to your monitor and how close to your TV!



"IT'S A FANTASTIC UPGRADE – EVERYTHING'S 1.5 MICROSECONDS FASTER NOW"

On the 16-bit machine issue, I would love one but only if it was the traditional Alan Sugar price. However, on the compatibility side of things – surely Amstrad could follow Commodore's example. On a Commodore 128 you have a command GO 64. This emulates the Commodore 64 perfectly until the machine is switched off and on again. All games that worked on C64 will therefore work on the C128. If Amstrad brought out a 16-bit machine surely the commands "GO 464" and "GO 6128" would not be too expensive or difficult to implement. Also, the same 3" drive could be retained, as well as 7 and 8-bit printer ports and all the other goodies you find on 16-bit machines. With this system you still have the power and flexibility of the 16-bit technology but also the enormous market of the previous 464's,664's and 6128's – NO DISSATISFIED CUSTOMERS!!!

Gavin Manning
London

After all that lot, MY brain hurts. As for the GO 6128 idea, it's interesting but would entail putting two sets of chips in one machine, bumping up the cost considerably. The C64 and C128 are based on the same chip, the C128 is effectively just an upgraded machine. A 16-bit machine is totally different and you couldn't use a 16-bit chip to run CPC programs without an awful lot of expensive, time consuming fiddling around.

Throw down the gauntlet

I am writing to set some challenges for the Cheat Mode and Type-ins sections of *AA* in 1988. I am sure they are all possible – if a *Leaderboard* course designer can be written, anything can. Here are the challenges:

Write a *Gauntlet* or *Gauntlet II* level designer.

Write a *Trivial Pursuit* question pack maker.

Write some utilities for GAC, such as split mode graphics.

Write more split mode graphic and multi-colour routines, with more colours and modes on screen than before.

Create RSX's that show all variables in a program, dump the screen, emulate a WIMP environment and emulate the OLD command of the BBC.

Write a BASIC font creator for DMP's.
Write an intelligent screen dump routine for all modes (not just mode 0 like the last one).
Write a utility which can store more than one program in memory.

Well, that should keep everybody busy!

Stuart Whyte
Altrincham

Caveat Emptor

I have bought *AA* since December 1986 and the content and presentation has improved steadily since then, particularly when compared to a dedicated Atari magazine I used to subscribe to. Do people REALLY want their magazines to be little more than children's comics? Your games reviews seem accurate and impartial. News seems to carry items that would appeal to mass interest rather than a small minority. There is enough "serious" content to strike a happy balance between games only and serious magazines.

If I could mention something to the people who consistently air their grievances about software piracy et al. Computer software is about the only market where you buy the goods WITHOUT seeing the actual product. You can end up paying £20 or more for absolute junk. Unless we return to the "old days" of software retailing, where the shop would load the software up for ones perusal, there will always be people copying games from their friends, rather than spending their money on unknown quantities. I don't condone piracy, but neither do I bang my drum against it. If a piece of software is worth buying it will still be bought in sufficient quantity by the "honest" public to keep the software house in profit.



Games software has, over the past few years, become much more sophisticated, both in play and graphically. More often than not the price you pay for the game reflects that, and it looks to me that it will continue to do so. Why don't the knockers of software try comparing, for example, *Roland on the Ropes* with a game like *Head Over Heels*? Both are of the maze format, one is superior both in graphics and scrolling, yet both were considered almost "state-of-the-art" in their time.

David Coggins
Stanley

Roland on the Ropes was state-of-the-art? You'll be telling me the Enterprise was a successful computer next.

SOFTWARE WINNER

Too many legs

Since the Hitachi HD64180 (or Zilog Z180) processor chip was mentioned some months ago in AA, a number of people have written about the possibility of upgrading the CPC with it. Having had experience with this chip, I'm afraid that there's no possibility of it working as a plug-in replacement for the Z80 in a CPC. This is both because of the machines internal architecture and because it has 24 additional legs. Nevertheless, with a bit of extra hardware it could be made to work, and would give a minimum speed increase of 4/3 just by being there. Here are a few hints and warnings.

The 64180 reserves 64 I/O addresses for its internal special function registers and, although these do not overlap the CPC I/O addresses, they are all accessed with high address 0 (A8-A15=0).

Anyone familiar with CPC programming will see that because of the extremely primitive "decoding" used on the machine, an access to any special function register will operate on EVERY external I/O port. This includes the printer port, the gate array and the disk system, which will have disastrous results. But there may be a way....

To use a 64180 it would be necessary to build up a small PCB to carry the processor and some logic, and plug this in where the Z80 belongs (or possibly into the expansion port). The PCB could also carry line drivers for the two on-chip RS232 channels. The logic would monitor A8-A15 to detect internal I/O accesses and inhibit /IORQ when they occur. Clocking the processor could be problematic as, unlike the Z80, it needs a signal at twice its running frequency, so the plain Z80 clock won't do. Again, this could be overcome with logic; it may also be possible to run the 64180 off its own independent clock, but to do so might cause synchronisation problems with the video gate array. This may happen anyway, because the cycle timing of the 64180 is different from the Z80 – that's why it's faster.

In short, it's not a trivial job, but not impossible. I'm too busy, but I'd be interested to hear from anyone else wanting to have a go. Perhaps it would be a good project for one of the hardware add-on companies like Dk'Tronics/RAM.

Peter Hand
Portsmouth

This project sounds like it would divert more talent and resources than NASA's space programme, but I'll bet someone's game enough to have a go. If you can work it all out we'd love to hear about it.

Hamming it up

I have been looking for some time now for software for my Amstrad in connection with amateur radio. Maybe some of your readers may have the info I am looking for, ie Ritty, Slow Scan, etc. Any information, or anyone who is interested in amateur radio, who would like to get in touch, or let me know where I can obtain the address of a software company who can supply me with software, I would be most grateful.

Wm Fairbairn
5 Dumbarton Road
Fort William
Inverness-shire PH33 6UU

Master of the missive

With reference to your letter from Neil Jones (Reaction, issue 29), may I address a few facts to that particular gentleman? If he is still with us, that is.

In the early days of the CPC revolution, there were four magazines devoted solely to the Amstrad range: "Amstrad Computer User", *Amstrad Action*, "Computing with the Amstrad" and "Amtix!". Today, three of the titles are still going strong, while Amtix! has bitten the dust, and deservedly so. Mr Jones (or should that be Master Jones?), think carefully about this. Magazines can only afford to be printed if there are sufficient readers to support them. Obviously then, the first three periodicals must be able to boast a happy and contented readership (minor niggles apart), while Amtix was falling apart at the seams, due to readers becoming disillusioned with the magazine. This means that the vast majority do not share your views on what makes a good magazine.

In the first instance, I wholeheartedly agree with the editor of "Reaction" concerning the cover



"ALL I DID WAS TYPE IN 'GO 6128'"

graphics of Amtix. A brilliant artist Oliver Frey undoubtedly is – a retired commercial artist myself, I am qualified to comment; but he seemed to be obsessed with the sickening, ugly, and revolting aspect of computer games. My own patience finally snapped when, at one breakfast-time, in lieu of the morning paper, I picked up "Amtix" – and promptly pushed my meal away. I was physically sickened by a nauseating, salivating monstrosity meeting my horrified gaze. This was the last straw, and immediately I wrote a very angry letter. Needless to say, it was not published, and was totally ignored.

such is the arrogance of the man who apparently believed that he, and he alone, knew what was right for his readers.

Most of the letters published were of the eulogistic "brill/fab" variety, and barely worth the paper they were printed on. Only very occasionally did one read a mildly critical letter.

Now back to *Amstrad Action*. Since the old days it has grown up, and presents a much more interesting face. The cover is eminently acceptable, and the general layout inside is a considerable improvement, including the new typefaces. I am not going to pretend I read the magazine from cover to cover – I am a selective individual. For instance, "The Pilgrim" articles do not interest me, because neither my sister nor I play adventures. However, after reading Neil Jones's letter, I read the article right through. I found it well presented and intelligently written. It must evidently be enjoyed by those with an interest in adventures, and that is all that matters.

In conclusion, before he writes any more missives, I would suggest the verbose Mr Jones takes a course, if there is one, in how to write letters. He certainly needs it!

Wm ACC Smith
Windso

You cad sir!

I am currently writing a Computer Aided Decision/Artificial Intelligence language. I am trying to compile a list of keywords and routines, and I would like your readers to send me phrases, hints, suggestions, routines, etc, to include in the language.

I would particularly welcome ideas from anyone who has experience in Lisp, Prolog, or is interested in Artificial Intelligence, and anyone who would like to help design or program routines.

Cormac McGaughey
1 Glenariff Road
Cushendall
Co. Antrim BT44 0QY

A reassuring word

To reassure Mr Craven (Reaction, issue 29) about *Printmaster*. I was interested in this product, but was unsure about its compatibility with *Mini Office II*. I telephoned Siren who were most helpful, it was compatible with *Protext* and *Tasword*. I bought *Ultrasound* and *Cherry*



"HE'S REALLY GETTING THE HANG OF THAT GAME NOW"

Paint, and can assure Mr Craven that they are excellent products. *Printmaster* in particular far exceeded my expectations. I would suggest that Mr Craven telephones Siren to check on his printer's compatibility.

David Bozon
Nottingham

Do the rom shuffle

Could you please tell me why some software switches Roms on. I have found it to be a real nuisance, as some software will not run with Roms present. When I software switch them off, the program switches them back on again and then crashes because the Roms are present.

The only way to get round this problem is to physically remove the Roms, which is inconvenient to say the least and produces unnecessary wear and tear on the edge connector.

Mick Ellick
Bristol

New protection systems have been produced to detect "black boxes" like the Multiface II. If they detect Roms plugged in they crash the program, stopping you using such devices. Even now this looks like it's been countered by the black box producers, but I dare say the battle will continue to and fro for a while yet.

Case of the missing manual

Yesterday I finally purchased an Epson LX-80 printer, something I have wanted for a long time. Although the price is normally around £200 or more, it has, I believe, become discontinued. In addition my local Boots seems to be getting out of hardware and only selling software. For these two reasons, and the fact that this was a demonstration model, I was able to purchase it for £130.

Now for my problem! There were no instructions with it, no printer lead and a pretty worn ribbon. I purchased a lead from Dixon's. But where-oh-where can I get a manual? Can any readers help?

I would be grateful if anyone can give me an address to contact or, if there are no new ones available, maybe a photocopy of one. Also where can I get ribbons for it?

I am using *Protext* to write this and I have the printer working but I am sure it can do a lot more than just straight forward letters; after all there are 12 DIP switches on the back of it!

D P Daughton
Llanelli

You aren't allowed to photocopy manuals – that's infringement of copyright. Contact Epson themselves on 01 902 8892 and they should be able to tell you where to get a manual, and your nearest stockist of Epson printer ribbons.

Rebel without a game

I am writing to enlist your help in tracking down software to my taste. I have purchased many games on the recommendations of your Action Test but from *Acrojet* through *Colossus 4 Chess* to *Gauntlet*, *Sweevo's World* etc, etc, only *Rebelstar* has given me any lasting pleasure. Far superior to any other game I have played in any price bracket. I would love to know of any similar games and/or any programmed by the same team. Unfortunately however good a game is, you eventually have to admit you have exhausted its possibilities.

John Osborn
Taunton

Unfortunately Rebelstar *is the only game by Julian Gollop to appear on the Amstrad. It's very difficult to pinpoint what sort of games will be to your taste. It sounds like you might enjoy wargames and strategy games. Without more information on what you like about a game I can't be more specific. This is what reviews are for, not to recommend software blindly to everyone, but to provide information on a game so that you can decide whether YOU will like it or not. We think we're reasonably objective about games, but there will be differences of taste on all games.*

Impossible takes a little longer

I would be very grateful if you could send me details of all the games available for the Amstrad.

John Williams
Roehampton

I can take a joke. In fact I haven't stopped laughing since I read this. You could always buy all the back issues we've got available. Alternatively you could pay me large sums of money to spend a few days researching. Otherwise you'll just have to make do with Action Test, our monthly look at what's new in the games field.

Quest for truth

Will SSI (authors of many fine wargames and simulations) be converting games for the Amstrad? I think there is a lot that would be popular.

What's the difference between the Amstrad DMP 2000 and DMP 3160, and would the DMP 3160 work on my CPC 464?

If I bought the chip to convert my 464 to a 6128, could I use a 256K silicon disk instead of 64K ram?

Andrew Brown
West Germany

SSI are currently working with US Gold to convert their role playing games, including Dungeons and Dragons.

RpM writes...The 2000 was the first Amstrad printer to appear with the sleek front-loading system. The 3160 is of a similar design, costs more (£228.85 compared to the 2000's price tag of £159), is IBM compatible and is marginally faster – it is also cream coloured; the 2000 matches the CPC's colour scheme. Both DMP machines will work with your 464, but if you can do without the extra speed (and who needs IBM graphics characters) then the 2000 is the wisest choice.

Although we don't have a 256k silicon disk in the office, we can see no reason why this should not work with your setup.

Helpline

Where eager Amstrad experts volunteer aid to fellow readers having problems

If you too feel helpful, just send us your name, address, phone number (say so if you don't want it to be printed) and subject on which you want to help. Please write on a postcard or the back of a stuck-down envelope to simplify administration here in the office. Send to: **Helpline, Amstrad Action, 4 Queen Street, Bath, BA1 1EJ.** If you are asking for help, make direct contact with the appropriate Helpliner - don't pester your usually-patient (but pressed) editor. By post, you must include a self-addressed, stamped envelope for the reply - otherwise you won't get one. And if you telephone, stick to socially acceptable hours!

Reminders: Anyone invloved in piracy is not welcome on this page and if problems arise they will be removed. Keep it legal, it's in everyones interest. A plea to helpliners – if you do receive SAE's from people, please return them with some acknowledgement. Lastly a reminder that if you want to come off the Helpline you should write and say so.

Ranarama, Exolon, Zynaps, Alien 8, Head over Heels, Jack the Nipper, Batman, Thundercats, Super Robin Hood, Feud, Stormbringer, Ghost Hunters, Galvan, The Great Escape. Plus maps for loads of games, send a list of 5 games max to be mapped free.
Martin Grover, 11 The Croft, Lower Dicker, Hailsham, East Sussex, BN27 4BS

Stop Press, Extra-Extra, Sorcery+, Ikari Warriors, Knight Lore, Barbarian, 1942, Who Dares Wins II, Bomb Jack, Bomb Jack II, Exolon, Seastalker, Asphalt, Gauntlet, Gauntlet II, Protext, Prospell and the DMP 2000. I also have lots of pokes and maps.
Pal Kroger, Bergjevegen 62, N-4056 Tanager, Norway

Mini Office I (program that removes all bugs, send SAE), business program (word processor, spreadsheet, graph display etc.) written by myself, send cass or disk and SAE, Deflektor, Gauntlet II, Matchday II.
Paul Graves, 46 Queens Road, Ash, Canterbury, Kent

De-bugging Basic programs, basic listing at 50p E/A
Tom Daffin, Crawley Farm House, South Brewham, Near Bruton, Somerset, BA10 0LB

Programming in basic (mostly utilities), Protext, Toolkit (Beebugsoft), DMP 2000, Utopia, Printmaster, listings 15p (draft) or 30p (NLQ), Artwork (Kuma), tape only.
Matthew Cawley, 42 Hamilton Av, Sandycroft, Deeside, Clwyd, CH5 2PB

Lots of games, far too long a list to print.
TP Cheung, 771 Woodbridge Road, Ipswich, Suffolk, IP4 4NE

Stormbringer, Eagles Nest, Indiana Jones, Short Circuit, Curse of Sherwood, Shard of Inovar, Batty, Lightforce, Lord of the Rings, Worm in Paradise.
Nicholas Roach, 5 Hintlesham Close, Stowmarket, Suffolk

Enduro Racer, Bombjack 1 and 2, Yie ar Kung Fu, Buggy Boy, basic programming.
Alex Kelly, 113 Potter Street, Northwood Middex, HA6 1QF

Send me your program and a blank tape and I'll draw a professional looking loading screen for you. Please enclose description of software. CPC 464 only.
Andy Van-Kerro, 42 The Avenue, Ramsey, Huntingdon, Cambs, PE17 1AU. ☎ 0487 813194 10am-10pm

3 Weeks in Paradise, Renegade, Knight Tyme, Ninja, Flash Gordon, Grand Prix Simulator, Ghosts and Goblins, Yie ar Kung Fu.
Mark Warriner, 92 Whitfield Avenue, Pickering, N.Yorks, YO18 7HY

Cobra, Yie ar Kung Fu, Green Beret, Bruce Lee, Rambo, Ghostbusters, Gauntlet, Gauntlet II, Mission Genocide, Chronos, Ninja, Trantor, word processor writing.
Andrew Given, 83 Dickson Street, Edinburgh EH6 8QH. ☎ 031 554 5001, call after 5pm.

Basic (including graphics and sound), short machine code routines, penpals computer matched.
Thomas Reader, 6 North Street, Stilton, Peterborough, PE7 3RP

Basic programming, debugging basic programs, type in listings, print listings for 50p.
Neil Selwyn, Highfield, Coombe Keynes, Near Wareham, Dorset, BH20 5PS

French games (Les dieux de la mer, Forteresse, Bob Winner, Asphalt, Manhatten gs, Prohibition, Bivouac, etc), Gauntlet II, Captain America, Combat School, California Games and lots of tips, pokes and maps.
David Higelin, 5 rue Paul Verlaine, 68200 Mulhouse

Who Dares Wins II, Yie ar Kung Fu, Frank Bruno's boxing, Hunchback, Kung Fu Master, Jailbreak, Bombjack, Sai Combat, Shogun, Ping Pong, Terminus, Ghostbusters, Amaurote, Batman, Dr Destructo, Grand Prix Simulator, BMX Simulator, Paperboy, 3 Weeks in Paradise, Curse of Sherwood, Equinox.
Terence, 62 Rainbow Drive, Melling, Liverpool, L31 1B3 Merseyside. ☎ 051 547 2714

Gryzor, Ghost Hunters, Mission Genocide, Army Moves, Green Beret, Exolon, Equinox, Mag Max, Feud, Trantor, 3D Starstrike, Ikari Warriors, Sai Combat, 1942, Spindizzy, Three Weeks in Paradise, Who Dares Wins II, Screen Designer, listening in stereo.
James Walker, The Lingfield Inn, Lingfield Drive, Moortown Leeps, West Yorkshire, LS17 7LE. ☎ 0532 697988

Basic Programming, Head over Heels, The Hobbit, Jet Set Willy, Barbarian, Gauntlet, Elite.
Martin White, Room C49, Alexandra House, 59 Imperial Road, Exmouth, Devon, EX8 1AU

Green Beret, Yie ar Kung Fu, Mikie, Hypersports, Cauldron II, Frost Byte, Dandy, Highway Encounter, Way of the Exploding Fist, Starion, Spindizzy, Who Dares Wins II, Zoids, Equinox, Antiriad, Druid, Sentinel, Space Harrier, Elite, Sorcery+.
David Parker, 14 South Drive, Brentwood, Essex, CM14 5DJ

Bulletin boards for CPC, comms, RS232, Modems, Setting up a bulletin board, Public Domain bulletin board software for CPC.
S Sandles, 81 Queens Road, New Tredegar, Gwent, NP2 6DZ. Merlin BBS (0443) 834179

Hints, tips, pokes on Pulsator, Run for Gold, Amaurote, Short Circuit, Paperboy, Ikari Warriors, Arkanoid, Rebelstar, Thrust, Exolon, Renegade, Speed King, Get Dexter, Green Beret, Raid
Iain McKinnon, 37 Loch Laidon Street, Sandyhills Estate, Glasgow, G32 9HR

Batman, Ikari Warriors, Jack the Nipper, Rambo
Si Carter, 6 Laurel Grove, Hoole, Chester, CH2 3HU

Pokes and tips for most games. Basic programming, some machine coded debugging Basic listings.
Mark Hillier, 121 Eliot Bank, Forest Hill, London, SE23 8XD

Writing an using CPM software, 8080 and Z80 assembly language, any version of Basic, protection of data and programs, research development and programming of games and languages, Basic and MC graphics. Much more available, write for details.
Cormac McGaughey, 1 Glenariff Rd, Cushendall, Co Antrim, BT44 0QY

I have tips etc for Future Knight, Dan Dare, Ikari Warriors, Starglider, Short Circuit, Knight Tyme, Dizzy and more.
Dominic Keen, Church View, School Lane, Upton Snodsbury, Worcester WR7 4NH

Alien 8, Arkanoid, Ballblazer, Beach-Head, Confuzion, Dambusters, Erbert, Finders Keepers, F1 Simulator, Hacker, Jet Set Willy, Knight Tyme, Masterchess, Milk Race, Nightshade, Parabola, Radzone, Sabre Wulf, Spaced Out, Speed King, Spindizzy, Starion, Think, Way of the Fist, Protext, DMP 2000, Basic.
Rufus Cable, Woodpark, Shrule, Co Mayo, Eire (NB English stamps no use on SAEs).

Basic programming and guidance on routines
Stephen McCormick, 27 Coshneuk Road, Millerston, Glasgow, G33 6JH

Programming in Basic and machine-code, Knight Tyme
Phil Stockdale, Thorndale, 18 Shire Rd, S Ferriby, S Humberside, DN18 6JG ☎ (0652) 34363

I am offering tips on: Pinball Wizard, Killer Gorilla, Defend or Die, Chronos, Spindizzy, 5-a-Side Soccer, 180, Dr Destructo, Gauntlet, Head over Heels, World Series Baseball, Paperboy, Renegade, Green Beret, Yie-ar-kung-fu, Leaderboard, Mission Genocide, Football Manager.
Simon Baker, 23 Biddenden Way, Istead Rise, Gravesend, Kent, DA13 9DE ☎ 0474 833246

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AMSCENE

Monthly update on what's new on the CPC scene

Concern grows over cheap imported disks

Over the past six months there has been a steady influx of cheap 3-inch disks from the Far East. The average price for ten is £15 and in bulk quantities the price per disk can be less than £1. Amsoft or Maxell disks retail for around £24.95 in boxes of ten. In higher quantities this comes down to about £1.50 each.

The cheap disks are recognizable by a circular pattern stamped



● Ward: cheap disks impractical

into their plastic surround. They also come in a variety of colours: black, blue and light brown. Zonefour, located at Welwyn Garden City in Herts, import the disks directly from the Far East. Sandra Herbert told us, "As part of the quality-control procedure, the disks arrive from the Far East pre-formatted. They come in two forms, either single-sided or double-sided. We then sell them on as either unbranded or under our own label, Mimic."

Although high street chains frown upon such disks and stick rigidly to Amsoft and Maxell, several software houses are adopting the budget 3-inchers.

Mark Norsworthy, production manager at the duplicating firm Interceptor, estimates that they get through 25,000 budget disks a month. "Out of these", he said, "we have under 1% of rejects." Norsworthy did admit that the disks were of lower quality, but as



the market was so competitive he couldn't afford Amsoft or Maxell. "If you give people the choice of paying £1.50 for Amsoft or £1 for these other disks, they'll go for the cheaper ones every time."



● Mordecai: unconcerned

Ocean's chairman, David Ward, held a different view. He told us that Ocean don't use cheap disks and were unlikely to do so in the future. "They are of extremely low quality; it wouldn't be worth our time or trouble having to replace so many faulty goods."

Mike Mordecai at Amsoft was aware of the cheap disks, and when quizzed as to whether these imports were affecting sales of Amsoft disks replied, "We have noticed no drop in sales. If people want reliable disks, they'll pick Amsoft every time."

Of the cheap disks we've had in the office these have been amongst the faults demonstrated: a disk only works on one machine, horrible noises when being read, totally unreadable, and no indication of whether they're single or double sided. Some disks have worked okay, though, as yet, we don't think we've tested a large enough sample to be sure of the results.

If you have problems with any disk, return it to wherever you obtained it. If large numbers of returns start occuring due to faulty disks, you can bet the software houses will sort things out fairly sharpish.

Low-cost colour printer

Star Micronics, of Ealing in London, have released a colour 9-pin dot-matrix printer for under £260. The LC-10 allows seven colour printing, has eight resident fonts and a printing speed of 144 characters per second in draft (reduced to 36 in near-letter quality).

Standard functions are selected from the control panel: fonts (Courier, Sans Serif and Orator, for example), print pitches (pica, elite and condensed) and print quality. Forward and reverse micro-feeds, self-test and hex dump facilities are also accessible from the panel. Star Micronics are on 01 8401800.

Plus assembler

Pyramid, responsible for many of the programs to appear under Gremlin's Discovery label, have announced plans to update their assembler and disassembler package, *Pyradev*. The enhanced version is to be called *Pyradev+*. Lars Osterlind at Pyramid said that this time they would be marketing the product themselves, instead of Gremlin.

The original *Pyradev*, released over two years ago, works from Amsdos. It is a machine code programming tool. *Pyradev+* will work only on machines running CPM plus – 6128 or 464/664 with extra memory. The new version will have a significantly faster editor, symbolic monitor, better disk-handling and an integral disk copier. The price for *Pyradev+* is set at £24.50. Existing owners of *Pyradev* can upgrade for £14.50. Pyramid are on 0628 22065.

Show report

The ninth Official Amstrad Computer show took place between the 4th and 6th of February at the Great Hall, Alexandra Palace. Much of the exhibition consisted of small stalls occupied by owners of computer shops and mail order companies. Hardware and software was being sold by them at



● Siren's Master Mouse

extremely low prices. Of course, many well-established firms were there; few had any surprises in store, but many promised much.

Arnor, who haven't released anything CPC-only for over a year, were doing extremely well with *Maxam*, *Protext* and *Utopia*. Although they had nothing new at the show, managing director Mark Tilly had news of several exciting products. *Protext Filer* (£24.95) and *Protext Office* (£34.95) are due for an early March release. Both require the disk or rom word-processor *Protext* and the mail-merge utility *Promerge*. The two give *Prtext* datafile management or database-like properties. Comprehensive sorts and various other utilities are promised.

Protext Office is intended for the business market as invoice printing is catered for. Credit notes, delivery notes and the like are permissible. Tilly commented that Arnor use the program to produce all their invoices.

Maxam 1 1/2 (no joke) is another product on the way from Arnor. It is virtually the same as the original *Maxam* assembler, minus the editor. *Protext* is needed for creating or editing an assembly file. Files are assembled from *Protext*'s command mode. An enhanced monitor is also included. The retail price will be £29.95 on rom only. A £10 discount is offered to anyone upgrading from the earlier *Maxam*.

Siren Software were there with a healthy selection of new items. *Master Mouse* – consisting of a three-button mouse (akin to the older AMX mouse) – was seen scurrying across several desktops. Both mouse and *Cherry Paint* now sell for £49.99. Siren's design and artwork package, *Micro Design* (reviewed in issue 28), was in its final form. *Hackit* couldn't manage its show debut, but a prototype was there for scrutiny. This hardware gadget, which has a surprising resemblance to Romantic Robot's *Multiface II*, enables any program to be halted in mid-flight. The whole of memory may then be inspected and altered. Included is a memory editor and disassembler. When the product is ready it will retail for £29.95.

LCL, responsible for the *Micro* range of software, were there in full force promoting their new educational home college



● Double-sided 5.25 disk drive from KDS

courses. The learning courses include lectures on video and tutorials using computer software. At the time *Foundation Level Maths*, *Foundation Level English* and *Foundation Level French* were ready. Others are in the pipeline. Each costs £49.99.

KDS demonstrated *Screen Master* – a poster maker which can manipulate letters and graphics on screen and then send the result to the printer, their updated 8-bit printer port and a high-capacity 5.25-inch disk drive. The drive comes with software on either disk or rom. It is usable from both CPM and Amsdos. Price: £139.95 (with disk software). Add an extra £19.95 for rom software.



Romantic Robot's revised *Multiface II*, the tape to disk hardware utility, was on display. The new model has a switch that gets round the problem of *Multiface*-checking software. The price is the same as the original: £39.88. The cost of upgrading is £15.95. A disassembler for the *Multiface* is being written. Although there are no clear indications of its exact functions or price, it will probably reside somewhere in the *Multiface*'s 8k ram.

Rodos Extra was also on show. This contains a wealth of utilities including a disk copier, help files, formatter, tutorial on how to increase the number of drives attached to your computer and much more. £9.95 on disk.

The Alexandra Palace in London will house the tenth Amstrad Computer Show. The dates are May 26th to 28th.

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Arnor ☎ 0733 239011
Protext House, Wainman Road, Peterborough, PE2 0BU
KDS Electronics ☎ 04853 2076
15 Hill Street, Hunstanton, Norfolk, PE36 5BS
LCL ☎ 0491 579345
13 Deanfield Road, Henley, RG9 1UG
Romantic Robot ☎ 01 2008870
15 Hayland Close, London, NW9 0LH
Siren Software ☎ 061 2281831
2-4 Oxford Road, Manchester, M1 5QA

New portable from Amstrad



● Amstrad's new portable PC weighing in at around £460

Amstrad's new portable PC machines, the PPC512 and PPC640, were available for the first time at the 9th Official Amstrad Computer Show. Portable PC clones normally start around the £1500 mark; Amstrad have managed to bring the price down to a staggering £458 for the most basic model.

The portables are available in two forms: the 512k version and the 640k model. The latter has a built in modem for communication via the telephone network. Each has one or two compact 720k 3.5-inch disk drives. The computer runs on either battery or mains. The sockets at the back include hard disk, expansion, RS232 serial, parallel and 9-pin D for connection to a standard PC monitor.

When folded up, the machine looks like a sewing machine. Pulling back the lid uncovers a full-sized keyboard and small liquid-crystal display. The processor is an 8086-2 running at 8Mhz. The portables are possibly the most IBM-compatible that Amstrad have produced to date – the two display modes used are the original IBM standards.

Perfect printheads

After dusting disk drives with *Clearhead*, SBS Computer Supplies have moved on to polishing printer printheads with *Cleanprint*. SBS's latest is a printer maintenance package. It takes the shape of a standard printer ribbon, and is fitted in place of the existing one. By sending a few lines of data to the printer, *Cleanprint* is supposed to remove dirt and ink deposits and lubricate the printhead.

The pack comes with an aerosol of compressed gas for blowing away dust from awkward areas. Also thrown in are a handful of cloths for wiping dirt from other parts of the printer. £14.74 buys *Clearhead*. For a sparkling printer contact SBS on 0273 726331.

Ariolasoft drop out

Ariolasoft UK have announced that they're pulling out of the computer software market. All of their labels are now up for grabs by other software houses and a spokesperson for Ariolasoft said that they expect them to be sold in a couple of months. Any games should still be available through the usual retail outlets for the time being.

Electronic music

Rob Hubbard, the free-lance music artist, has joined Electronic Arts on a full time basis. Rob is responsible for the music on over 60 computer games in the last four years, including games like *Monty on the Run* and *Skate or Die*.



● Electronic Arts make the right noises for Hubbard

CPM on ROM

Graduate Software from Bristol have unearthed a method of placing CPM Plus on rom. This means there'll be no waiting for CPM Plus to boot up as it will be there instantaneously when summoned. Graduate require a CPM plus master disk (as proof of purchase) and £24.95. In return they supply two roms containing a personalised version of CPM plus. Graduate Software, 19 Everest Road, Fishponds, Bristol, BS16 2BX. Tel 0272 656659

NEW RELEASES

Sequel to Driller

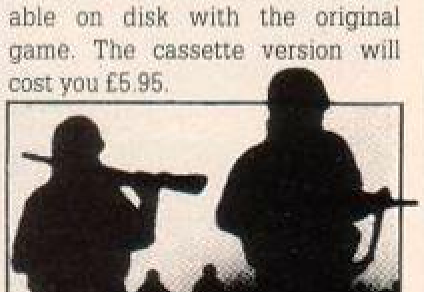
After the recent success with *Driller*, Incentive are working on a sequel called *The Dark Side*. It's not due for release until May, but until then here's a little background.

The Dark Side is set 200 years after the events in *Driller*. The Ketars have built a super laser that can be used to blast away Evath. It's powered by energy from the sun and when it's stored enough power it will fire. A huge matrix of energy collecting devices must be disabled so that the weapon can't fire. This time you're exploring on foot mainly, but you do have a jet-pack that has limited fuel. There are also the tank like Plexars to hinder you in a race against time.

The price has gone down a little this time at £9.95 on tape and £14.95 on disk.

More Mercenary

Novagen are releasing the second dataset for *Mercenary*, called *The Second City*, on cassette. Previously the *Second City* was only available on disk with the original game. The cassette version will cost you £5.95.



Platoon

Platoon, the game of the film, has arrived on the streets from Ocean. It's timed to coincide with the release of the film on video. Like the film it doesn't focus on the glories of war, but on the tragedy. The slogan is – "the first casualty of war is innocence." It's priced at £9.95 on tape and £14.95 on disk.

Spy Ring

Active have just released the *Spy vs Spy* trilogy of games on an unsuspecting public. *Spy vs Spy* was a *Rave* game back in issue 3 and the two follow up games, *The Island Caper* and *Arctic Antics*, were never released on the Amstrad. All three as a compilation for £9.95 on tape and £14.95 on disk is good value for money.

X-Rated

The Mastertronic Added Dimension range is being revamped as the MAD X range. The difference is that in MAD X you get another game on the B side of the cassette. Not all of the games will be new, *Motos*, *Spellbound* and *Amaurote* are three oldies but goodies, but at least you're getting two games for the same price of £2.99.

Running round the rim

Rimrunner by Palace Software should be in the shops as you read this. It's by Steve Brown, the programmer of *Barbarian*, and in it you charge around a scrolling landscape blasting away at an invading army of arachnoids (I bet they're related to spiders).

A fighting machine

Cybernoid - the Fighting Machine, is the new game from Hewson. It's a shoot-em-up by the programmer that brought you games like *Exolon* and *Equinox*, Raffaele Cecco. It'll cost you £9.95 on tape and £14.95 on disk.

Also by Hewson is *Nebulus*, an inventive derivative on the platform game theme, but packed with original features. It's due for a late April release and will cost £9.95 on tape and £14.95 on disk.

Grand Prix

Nigel Mansell's Grand Prix from Martech has just hit the streets. It's a 3D racing game in the tradition of *Pole Position*. Next month we'll have a full review of the game. It costs £9.99 on tape and £14.99 on disk.



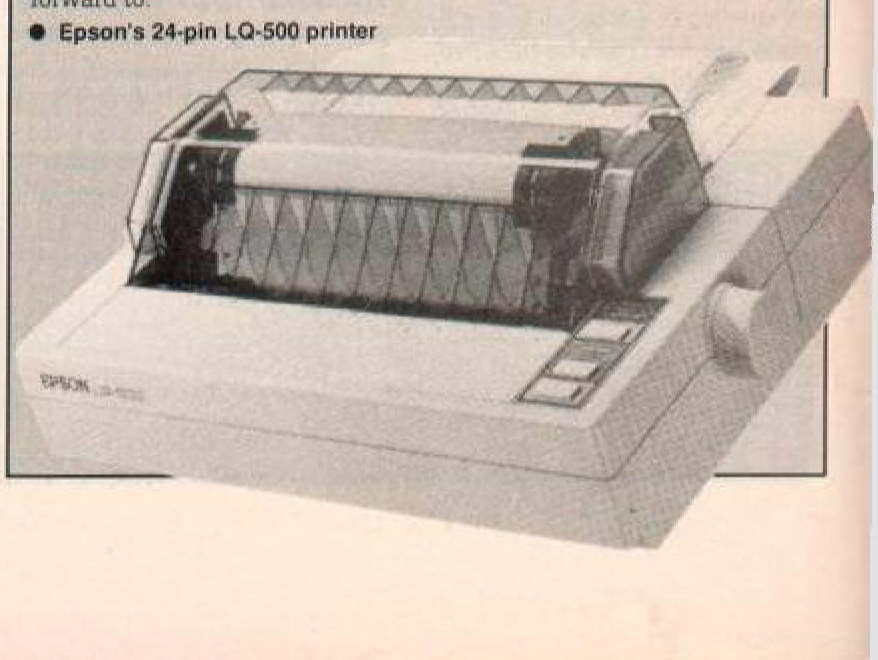
Ram Joystick

Ram Electronics have announced the new *Delta* joystick. The Hants based firm, who have the *Music Machine* and all Dk'tronic products under their wing, say the stick features six high quality microswitches, two fire buttons – including autofire – and a sleek design for smoother and more accurate play. The *Delta* costs £9.99. Phone 0252 850085 to get Ram.

Printer prize winner

Back in issue 29 we ran a competition for a superb Epson LQ-500 24-pin printer. We asked you to search for four printer-related words in a word-square. The answers to which are **buffer**, **italic**, **underline** and **parallel**. The response was phenomenal, but unfortunately there can be only one winner. After a thorough stir, one entry was picked from the large Future Publishing hat – **G Corns** from Newbold Verdon in Leicestershire was first out. The printer should be on the way to you by the time you read this. Bob's rhino now has the other entries to look forward to.

● Epson's 24-pin LQ-500 printer





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CPC: The Facts

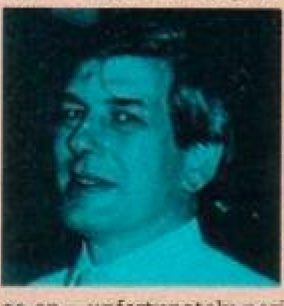
An in-depth investigation by Richard Monteiro and Bob Wade reveals that, far from being in a state of crisis, the CPC computers are alive, well and flourishing.

Rumours, speculation and downright fibbing have been dogging the CPC and Amstrad for nearly a year now. Doom mongers and "sources" have been responsible for producing all sorts of wild stories. At the heart of it all are three crucial questions:

- **How is the CPC faring in an ever more competitive market place?**
- **Will Amstrad cease to manufacture the CPC, and if so, when?**
- **Are Amstrad planning to release a 16-bit micro?**

The word according to Amstrad

We set out to answer these questions by talking to the people who know best – those that depend for much of their livelihood on the CPC. Obviously the best place to start for authoritative answers is at Amstrad itself. We spoke to Mike Mordecai, software sales manager, and began by quizzing him about the current shortage of DDI-1 disk drives...



Was this an indication that Amstrad were no longer interested in CPCs? Mordecai explained: "Everything at Amstrad has recently been split – computers, software, audio and so on – unfortunately peripherals were forgotten. We had large orders for the DDI-1 disk drive; supplies ran out before anyone noticed. Peripherals are now under my jurisdiction. Although it takes time for the manufacture and delivery of any product, we are expecting 5,500 drives for early March."

Mordecai's words shrug off any suggestion that Amstrad are about to leave the CPC for dead. After all you don't buy in over 5,000 drives, which can only be used on the 464, if you're about to stop producing the machine. Mordecai did state that Amsoft were not going to release any more software for the CPC and backed this up by saying "There was a lack of software when the machine was first introduced. We got the ball rolling. There are now enough software houses producing decent products for the machine to survive. Of course, if we do see anything exceptional, or there is any suggestion that software is becoming scarce, we shall release further titles."

Mordecai couldn't comment on any new hardware offerings from Amstrad "They don't tell me anything" he quipped. Amstrad's PR agency are no more forthcoming "We can't disclose any information until the product has actually been released." This attitude is understandable when you consider that idle speculation about new computers can damage sales of existing ones. It's also fairly pointless getting potential buyers excited about a machine months before it appears.

The fact is that no one outside Brentwood knows whether Alan Sugar has plans for a new 16-bit machine. But, as we discovered, plenty of companies are hoping he has.

The state of play

The biggest scare for the CPC came when Amstrad purchased the Sinclair trademark and computers. These directly conflicted in the games market with the CPC, casting doubt on its continued existence. However, despite two new Spectrum models since the acquisition, the CPC has survived and indeed prospered. To give a better indication of the current state of the games market we spoke to some of the software houses.

Ocean

Probably the most influential individual in the games industry is David Ward, chairman of Ocean. He told us that Amstrad software sales currently corner a healthy 16% of the UK market. In terms of units sold, the CPC market is strongest in Britain with France following close behind. The CPC is still well ahead – software sales wise – of the Spectrum +3, Amiga and Atari ST. There doesn't appear to be a slackening in demand. As Ward put it: "As long as there is a demand – and there is – we shall keep supporting the CPC."



Ocean have recently modified their policy on producing games. Rather than having a quickly produced product that has a shelf life of a few weeks, they are slowing things down: fewer games are written and more time and thought is put into each title. "The idea", said Ward, "is to create a better product that will sell in a larger quantity and, as there will be fewer titles, leave the distributor with an easier choice when selecting software."

Recent titles like *Gryzor*, *Combat School*, *Wizball*, *Renegade* and *Matchday II* show that Ocean have succeeded in raising their standards to very high levels. You get more K per penny from the multi-load games and much more attention has been paid to gameplay, graphics and sound.

When we questioned Ward about the possibility of a new 16-bit machine, he replied "There is no reason why Amstrad shouldn't release a new machine." He also thought it would be a "marvellous idea", and Ocean would support the machine if one were to appear.

Incentive

Ian Andrew of Incentive was very pleased with the performance on the CPC of their big game at Christmas, *Driller*. The CPC version accounted for 25% of the title's total sales. The Freescape system for creating 3D graphics was actually developed on a CPC, as was *Driller* itself.

Andrew was encouraging about the future for the CPC, "They're here to stay." This is reflected in Incentive's development plans which include the CPC in conjunction with the other major computers: Commodore 64, Spectrum and Atari ST.

When asked whether he thought Amstrad should produce a 16-bit micro, Andrew thought it was a good move for them, "Especially if they used a 68000 or 8086 chip." This would enable software houses to easily convert programs to a new machine from the ST or PC. He also said it would be "a nice idea to have the whole thing in one package, like the CPC."

Digital Integration

Ilya Girson is the Chief Executive of Digital Integration and like Ian Andrew he was very pleased with the performance of their latest game on the CPC, "Bobsleigh has done very well indeed." He estimated that CPC games sold about half as much as on the Spectrum and 64, a healthy figure.

When asked about the future of the CPC Girson responded, "The

Let's get serious

In the beginning the serious potential of the CPC through word-processing, accounts, databases, spreadsheets, graphics, music etc, was rather overlooked. Despite this it grew steadily and, even under pressure from its big brothers the PCW and PC computers, became an area of major importance. So how is it coping with the situation today?

Arnor

Mark Tilly, managing director at Arnor (responsible for the word-processor *Protext*, the assembler *Maxam* and many others), hopes that Amstrad keeps on producing the CPC: "There is no evidence that demand for our software is dropping. We are still selling an awful lot of Rom product and *Protext* just keeps on going. Things are going extremely well." During 1987 Tilly estimated that 10,000 copies of CPC *Protext* (including *Pocket Protext*, the CPM version) were sold.

As Arnor are still confident in the CPC range, they are releasing a new product which should be available in a couple of months. The new title works with *Protext*; it basically gives database-like facilities. Name and address files, sorting and label printing for instance. As yet the disk-only product is unnamed, but they have decided on a price of £24.95.

Goldmark Systems

Goldmark Systems, producers of tape-to-disk transfer utilities, a printer buffer, a font designer and the like, have no intention of dropping out of the CPC market. If anything, they are increasing their product range – five new titles are in the pipeline. Brian Barton at Goldmark says, "Turnover hasn't dropped off at all. If anything it has increased which is odd when many are predicting gloom and doom for the CPC."

There is a general feeling of disquiet with the CPC market which is best summarized by Barton: "Amstrad really ought to stop sitting on the fence and come down on one side or the other. Are they going to drop the CPC? Are they going to produce a new 16-bit machine? Who knows, but they are leaving traders in the air which is most annoying."

Most of this speculation would seem to emanate from journalists, digging for stories that may not be there. To that extent we've probably only got ourselves to blame for wishful thinking.

Tasman

Tasword has always been a big selling word-processor and, as we found out from Robin Thompson at Tasman, still is: "There is no sign that sales are tailing off yet. Even our other titles are doing well. *Tas-Sign*, for example, which is a more specialized product, is doing well and surprisingly is stronger on the CPC than the PCW."

Due to the CPC's continued popularity, Tasman have plans for future releases on the machine: "We are happy with the CPC and shall certainly keep supporting it for the rest of the year."

Thompson was hopeful of a new machine from Amstrad because, as he put it: "whenever Amstrad have released a new product it has always been good for us."

AMS

Desktop publishing is a relatively new development for the CPC, the best known package being *Stop Press* (née *Pagemaker*) from Advanced Memory Systems. "Mice are selling beyond all expectations – before Christmas and after." said Nick Pearson, managing director at AMS. He estimates that they ship around 1,000 mice to France every month and between 600 and 700 are sold in the UK during the same period. He's also happy with the way *Stop Press* is selling: "Sales have been steady with no sign of a drop off."

Commenting on the possibility of Amstrad bringing out a new machine, he said: "Amstrad have to be very careful because if they do bring out a new machine – something to compete with the Amiga or ST – it would conflict badly with their PCs. They might bring out a new machine, but whether it would be based on current 16-bit machines is questionable."

Campbell Systems

However, things aren't all rosy. John Campbell from Campbell Systems wasn't happy with the way software sales for the CPC were going. Campbell have been responsible for *Mastercalc* and the *Masterfile* series – they have no intention of releasing anything else for the CPC computers.

"The tail-off began sometime last year. We currently sell one or two packages a day in Britain and a handful every month overseas. This time last year business on the CPC was four or five times better."

He claims that serious CPC users are moving up to PCW and PC machines. "As far as I'm concerned the CPC is dead; drop the C and that's where it's at. The CPC has been relegated to leisure – possibly where it was first aimed."

He was also pessimistic about Amstrad releasing a new computer: "I can't imagine them doing it except to be one up on the C64 and Spectrum. Their other alternative would be to reduce the specification of the PC 1512, but I can't see them doing that either."

This issue of bringing the PC 1512 down into the home market is an interesting one, and one that Amstrad have been pushing for some time. Recent ads for the machine, in which a price cut is announced, are stressing its home entertainment potential. This move may not succeed because the PC has always been regarded as a business computer. In competition with the ST and Amiga it may well come off a poor third.

Siren Software

Simon Cobb at Siren Software was still pleased with the CPC market, as he claimed it was thriving and he had no cause for complaints. "It's still good for another year." he said.

Siren have backed this up by releasing a flood of new products for the machine: *Hackit*, Mouse and interface, *Micro Design*, Eprom programmer and so on. "We're constantly on the look out for new products; you can expect to see other titles from us in the future."

On whether or not a new machine from Amstrad would be a good idea, he had this to say, "Not only would it be good from the point of

8-bit market may become a budget one, but not necessarily reduce in size. The future of the CPC depends on the manufacturer's marketing plans, because software sold relates to new machines."

He also had some positive thoughts on the idea of a 16-bit micro from Amstrad. "I would be surprised if they aren't working on something. The additional competition would be healthy and would have a downward effect on prices." He also thought that it was a new and untapped market where there was a good chance of expanding the user base.

Infogrames/Ere

David Crosweller is responsible for marketing products by major French software houses Infogrames and Ere Informatique, including games like *Get Dexter*, *Passengers on the Wind* and the *Vera Cruz Affair*. He was not optimistic about the future for the CPC, offering "I wouldn't say it was bright."

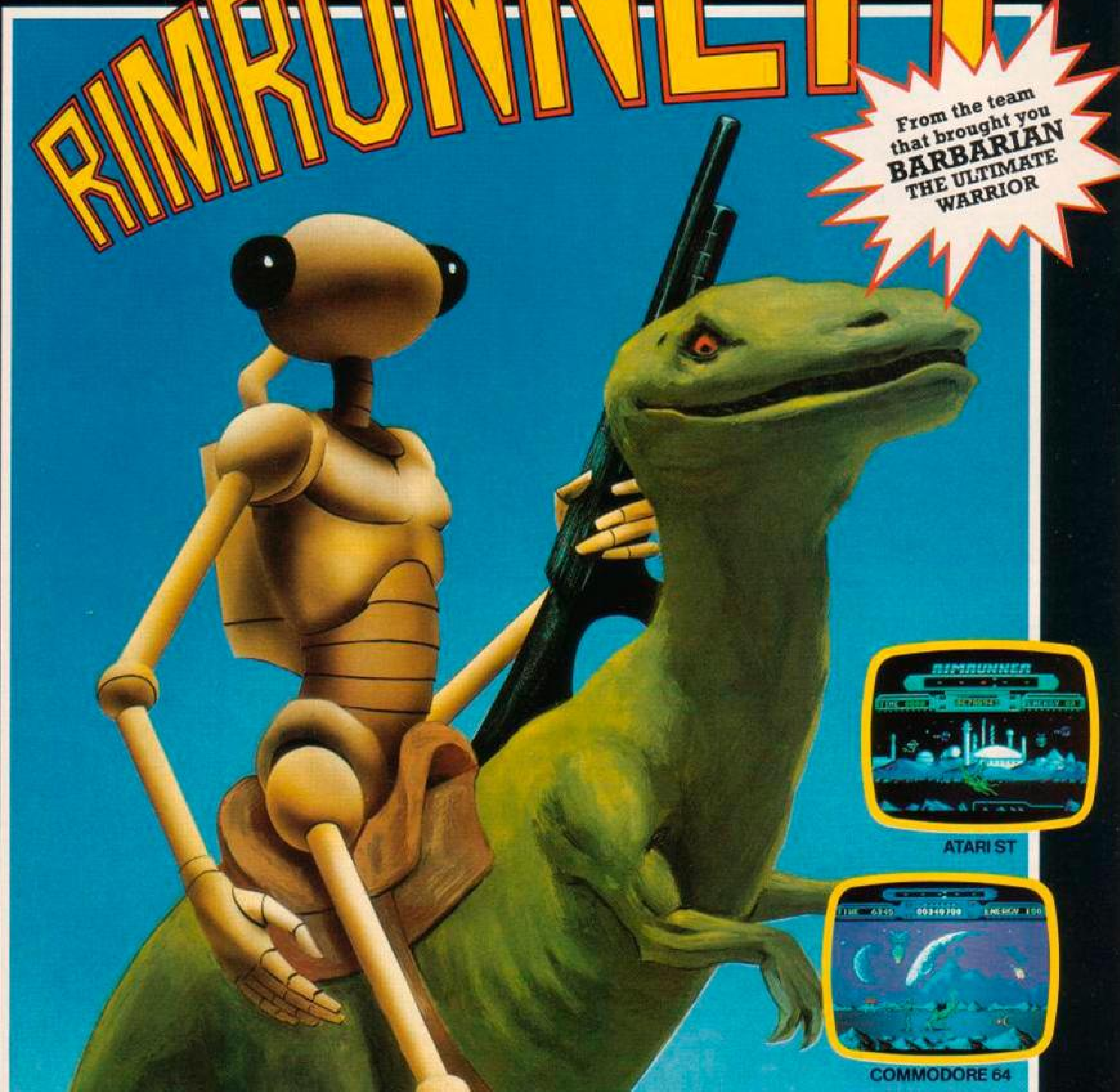
He was more enthusiastic on the possibility of a 16-bit machine. "Spectrums and CPCs account for about 60% of the market. If Amstrad don't produce a new micro, that share will be eroded. They can't let go, so I think they will launch a new machine this summer." He admired a lot of what Amstrad had done and added that "In order to continue and thrive the market needs three major players" (the Atari ST and Commodore Amiga being the other two).

Roundup

It was bad news from Logotron Entertainment's boss Herbert Wright. They produced the superb game *Xor*, but have no further plans to produce CPC games. They are concentrating on the 16-bit market instead. Amanda Barry at Activision was more positive, confirming that all future titles would continue to be released for the CPC.

Beyond the farthest reaches of the Galaxy…

RIMRUNNER



PALACE



AMSTRAD CPC

traders supporting the CPC and wishing to move on, but it would mean a 16-bit machine from the UK. The Atari and Amiga are both from the States, a British machine would go down well. Amstrad and Acorn appear to be the only active computer manufacturers left over here; the Archimedes is vastly over priced – Amstrad are in an ideal position to release a new machine

On the periphery

The peripherals market is another area where the CPC has always been very strong. There's never been any shortage of enterprising companies willing to produce an innovative new add-on. This situation also looked threatened by the news that the long time experts at helpful add-ons, Dk'Tronics, had been forced to get out of the industry. The rights to their name and products were obtained by Ram Electronics, so we began our investigation of the state of hardware peripherals there.

Ram/Dk'Tronics

Back in October Ram gained the rights to manufacture and sell all Dk'Tronics goods. Richard Sekular, sales director at Ram, said: "The company was prepared for the worst. We didn't know what to expect." It appears that Ram are thankful for taking on Dk's hardware as Sekular explained: "The demand at Christmas far surpassed our expectations. Demand is still huge and very encouraging."



Ram haven't any new CPC-specific projects lined up because they feel there is nothing obvious to be done. However, Sekular did promise continued support of the machine: "Even if Amstrad dropped the machine tomorrow we would continue supporting it for at least 12 months afterwards."

"We have had conflicting reports from our distributors: they tell us to move on to 16-bit machines like the ST and Amiga, but we believe in being practical not fashionable. We still make a joystick interface for the Electron. That machine was dropped a long while back, but there is still a large user base. We shall continue support for it just as we shall continue our support of the CPC."

Microtext

"Good and strong" is the way sales of the Teletext tuner and adaptor are going said Tony Cassell, head of Microtext. Cassell maintained that people buy the Teletext-receiving kit after the machine had been in their possession a while. He was confident that the future of the machine was assured and said he had noticed no reduction in sales.

Rombo Productions

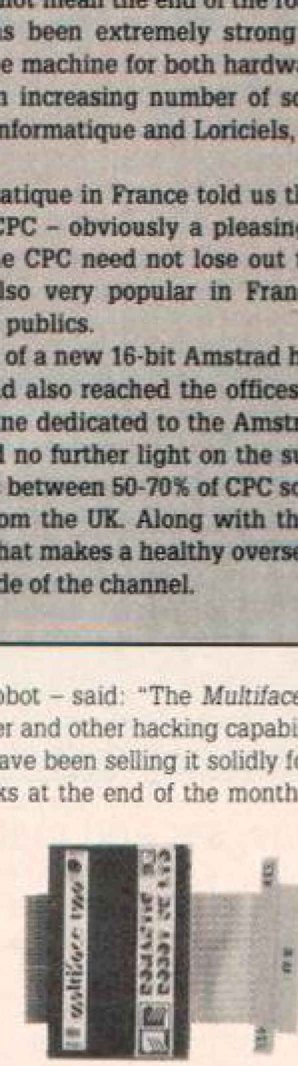
Rombo Productions are no stranger to the CPC market; they have had their hugely successful *Rombo* romboard and *Vidi* digitizer on the streets for over a year. Marcus Sharp at Rombo gave us his view of how things were going.

"The *Rombo* is doing well. Sales are steady and if anything are increasing. We are considering the future of *Vidi*; whether to scrap it or redesign the product. If a new *Vidi* were to see light of day, it would have a lower specification and lower price (around £39.95). The product isn't doing badly in the UK – around 50 units a month – but we are wondering how much mileage is left in the CPC digitizer market. We are constantly surprised at how well the product does. At the show, for example, we sold out of CPC *Vidi's*."

Sharp reckoned that if Amstrad were to drop the CPC machines Rombo would continue support for at least six to 12 months after that. He added that he "would be very surprised if Amstrad didn't launch a 68000-based computer, marketed as a direct competitor to the Atari ST in the near future." Would he support such a machine? "Absolutely."

Romantic Robot

Commenting on the strength of product sales, Alexander Goldscheider – managing director at Romantic Robot – said: "The *Multiface II* (a "black box" enabling tape-to-disk transfer and other hacking capabilities) is one of our best selling products. We have been selling it solidly for the past two years. When I look at the books at the end of the month I am always surprised – sales are always much better than I expect. This is particularly surprising as the distributors have long been complaining at the low demand for CPC goods."



Goldscheider was of the impression that Robot were selling more than before in the UK. Without giving too much away, he reckoned the number of units sold per month was in four figures. Goldscheider was not as enthusiastic about the French or German markets: "France isn't too bad, but we sell in 100's rather than 1,000's. And in Germany where we have a branch, sales are very slow."

Romantic Robot are going to continue their support of the machine especially as *Rodos*, their latest CPC offering – a rom based disk operating system, is doing well. Several products are on the drawing board, but the next release is likely to be a utility to used with the *Multiface II*.

"I hope Amstrad introduce a new machine. They have been most successful in the past and the time is right." was Goldscheider's closing comment.

European Prospects

If the worse ever comes to the worse and the UK CPC market does take a severe downturn, it still need not mean the end of the road. For some time the CPC market has been extremely strong in Europe. In France it's the number one machine for both hardware and software sales. We're seeing an increasing number of software imports from Infogrames, Ere Informatique and Loriciels, an encouraging sign.

Ricardo Fadanelli at Ere Informatique in France told us that 55% of their releases were for the CPC – obviously a pleasingly high figure. He also thought that the CPC need not lose out too much to the Atari ST (which is also very popular in France) because they were aimed at different publics.

He also confirmed that rumours of a new 16-bit Amstrad had spread across the channel. These had also reached the offices of Amstrad Magazine, a French magazine dedicated to the Amstrad range of computers. They could shed no further light on the subject. Surprisingly they estimated that between 50-70% of CPC software in France was brought over from the UK. Along with their estimate of 500,000 CPCs in France, that makes a healthy overseas market for software houses on this side of the channel.

Conclusions

- **The answer to the first question we set ourselves is a strong indication that the CPC is holding up extremely well. Most people are finding sales keeping at a healthy level, and as long as Amstrad continue to support the CPC there's no reason for this to change.**
- **At present the CPC computers are still being produced and succesfully sold. There is no indication from Amstrad that this will change. Indeed the promise to bring in more disk drives is a good indicator of their continued commitment to the range.**
- **The question of a 16-bit micro is left unanswered. What does come across from talking to the industry, is that if Amstrad aren't working on a 68000 based micro, they ought to be. It would be a massive success, in an entertainment market which is ripe for such a machine. A market which they will otherwise lose their stake in, slowly but surely.**

In our opinion the survey is great news for all CPC owners. Your machine is alive and well, and has every prospect of continuing that way for some time – maybe even into the 1990's.

WORDS WORK

How to get the most from your word-processor and printer

Laying out a document can be a thought-provoking exercise. Although a word-processor is designed to let you chop and change your words and layout without too much fuss, it can be a lengthy process. This month we look at a range of document formats and the best way to implement them on several of the top word-processors.

Font change

If you're using *Protext* then you can alter the character set that appears on screen. Note that this won't be reproduced on the printer, but makes a change from the Amstrad set.

Assuming you have a character set saved as a binary file, include the following line in your boot file:

```
SYMBOL AFTER 32:h=HIMEM+1:LOAD"filename",h
```

We haven't managed to successfully modify the characters used in *Tasword, Pyraword* or *Brunword*. If you have a solution, write in.

Game, set and match

Possibly the most important thing you'll need to decide before writing a letter, book, thesis, review or essay is the font (or character set) that will look best for your particular application. Of course, when you're working on any of the current CPC word-processors it isn't possible to change the character set; you're stuck with the standard Amstrad offering. Even if you could change the on-screen font it is unlikely this would translate to the printer.

Obviously then, this means choosing one of the printer's fonts. Standard printers only offer draft and NLQ fonts; others like the *Epson LQ-85Ø* have two letter-quality fonts (Roman and Sans Serif) with the option of adding others. Once you've picked the basic font you must choose the text size. All printers allow you to have 1Ø or 12 characters to the inch. These are standard sizes and are better known as pica and elite respectively. Do a test run before deciding on the text size: many printers – particularly older Epson printers and the new *Amstrad LQ35ØØ* – don't use different character sizes for elite and pica, they simply squeeze more symbols into a smaller space.

Higher specification printers offer different measures (or pitch), but again, do a trial print out before making your choice.

A wonderful way of increasing the number of printer fonts is to use *Qualitas Plus* from Seven Stars (Ø6284 3445). It costs £14.95 and works with the *Mini Office II, Protext* and *Tasword* word-processors. The results really are superb and the range of fonts ever increasing. Issue 22 holds a review of the original *Qualitas*.

Putting it in print

Next you must decide on the text layout; whether to use block or indent paragraphs, right or left justification, margin positioning and so on. Different secretarial colleges teach different styles and large companies may impose a standard.

You're most likely to reach for your word-processor to write a letter. Either for business or to a friend. Decide on the margin widths first of all. Generally the left margin should be greater than the right. If the letter is short then increase the margins widths – this will fool the reader into thinking there is more than there actually is on the page. Do the converse if your letter is long.

Having to set margin widths every time you wish to write a letter is tedious. Save a dummy file to disk or cassette with the margins at the required positions. Simply load this file whenever you're in a letter-writing mood.

Margin settings

Protext – To alter the margin you must create a ruler. Achieved by pressing control and R together. Then it's just a case of editing it. The less-than sign (>) refers to the left margin, exclamation marks (!) indicate a tab stop and the R tells you where the right margin lies. Save the file as **LETTRULE** or similar. Load this file when you wish to write a letter. Note that to create a ruler you must be in document mode.

Tasword – Unfortunately margin settings are not saved with files. This means another method for being able to alter the margins quickly is needed. The best solution is to redefine the function keys.

First you must know the codes for particular actions. Control and A (which sets the left margin) is equivalent to Ascii 1. Control D, which sets the right margin, equates to Ascii value 4. In this example the f1 key is defined so that when control and f1 is pressed the left margin is set to 1Ø and the right to 7Ø. Add the following line to the Tasword loader and save the new listing as **LETTER.BAS**.

```
3Ø KEY 1,SPACE$(9)+CHR$(1)+SPACE$(6Ø)+CHR$(4)
```

BrunWord – To alter the left margin hit control and L. The computer will prompt you for a new column setting. The right margin can be changed by pressing control and R simultaneously. You can't save just the ruler setting: include a space in the file and save the lot as **LETTRULE**. Load this file when you wish to write a letter.

Pyraword – The left and right margins are taken as the first and last tab-stops respectively. To alter a tab-stop press control and T from edit mode. Move the cursor to the required margin position and press tab to either plant or remove a stop. Press enter or return to record the settings. These settings can be saved from the Saved Options menu (press control and Z followed by S). If you reply WPSVOPTS.USR to the prompt then the tab settings will automatically load each time you run the word-processor.

If you wish to load the saved-options file at your convenience, supply the prompt with an alternative filename.



Ways with Words

Do you have favourite tricks for getting the best out of your word-processor? Or do you have seemingly insurmountable problems? Share them with other Amstrad addicts. Send them in to: **Words Work, Amstrad Action, 4 Queen Street, Bath, BA1 1EJ.**

Addressing problem

When I try storing my address on function keys, using *Protext* on cassette, in a similar manner to that printed in AA 29 for *Tasword*, all I get is a series of errors. Mostly `Improper argument`. Is this a result of routines used within *Protext*? Here is the program I use:

```
10 KEY 135,CHR$(13)+SPACE$(60)+"AMSTRAD ACTION"
20 KEY 136,CHR$(13)+SPACE$(60)+"FUTURE PUBLISHING LTD"
```

I cannot see where the error is. Is there any other way round this?
Kevin Joshua, Wirral

Your key definitions exceed the buffer limit allowed for key strings. The total space available is 128 characters. Both definitions together use 157 characters. You could use either one line or the other, but not both. A better solution is to increase the key buffer area. The program below does this. It allows you to use key definitions with a total limit of 1280 characters – more than enough.

```
10 FOR t=&BF00 TO &BF09:READ a$
20 POKE t,VAL("&"+a$):NEXT:CALL &BF00
30 DATA 21,00,a0,11,00,05,cd,15,bb,c9
```

The best method though, is to save your address in the correct format as a file; simply load this when you wish to write a letter.

Middle of the line

A letter in AA 29 showed how to place an address on the right hand side using *Tasword 6128*. An alternative is to have your address centred at the top of a letter, as in this example.

From *Tasword*'s main menu exit to Basic. Add these lines:

```
20 KEY 0,"Words Work,"+CHR$(23)+"Amstrad Action,"+
   CHR$(23)+"4 Queen St,"+CHR$(23)+"BATH,"+CHR$(23)+
   "BA1 1EJ"+CHR$(23)
```

When you're back in *Tasword* press control and f0 to automatically print and centre your address.
K Bucklitch, Bromsgrove

Italic solution

I work with *Tasword 464* and Mannesmann Tally MT+ printer. The built-in italics code does not work with this printer. Replace the existing code with `I-27-8-19` for on and `i-27-82-13` for off.
Trudie Howard, Sidmouth

Installing Qualitas

If you have *Qualitas 6128* and you want a convenient method of installing it simultaneously with *Tasword 6128* via a single key press, insert the following lines into the *Tasword 6128* Basic loader and save it onto your working disc.

```
152 PRINT:PRINT:PRINT SPC(1)+CHR$(24)+"Do you wish to
    install QUALITAS? (Y/N)"+CHR$(24)
154 i$="":WHILE i$<>"Y" AND i$<>"N":i$=UPPER$(INKEY$):WEND
156 IF i$="Y" THEN PRINT:PRINT:PRINT TAB (10)"Installing
    Qualitas":RUN"qual6128"
158 IF i$="N" THEN PRINT CHR$(11)+CHR$(18)
```

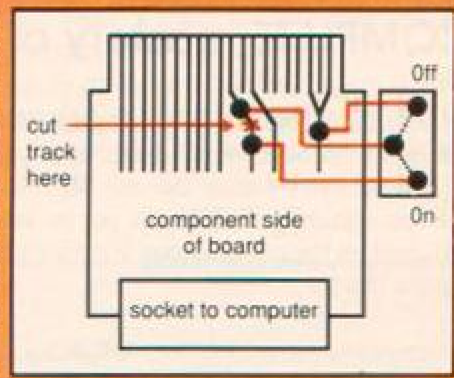
If you have the KDS Electronics 8 bit printer port you can incorporate the port patch program into the *Tasword* Basic loader by using the following method. Load the Basic loader into memory. Merge the port patch program (which is line numbered form 1 to 6). Before resaving the merged program, insert the following commands at the beginning of line 1 in front of `RESTORE 5`:

```
IF PEEK(&1900)=195 THEN GOTO 10 ELSE
```

J Crabtree, Darlington

Printer port patch

Being an enthusiastic user of *Qualitas*, the high-quality printer facility for the CPC's, I purchased an 8-bit printer port from KDS Electronics to gain access to the many fonts available only in 8-bit mode. However, when not word-processing, I kept forgetting to load the printer driver patch for the port.



The only answer seemed to lie in physically removing the unit, which I feared would lead to rapid wear on the connectors. My cure has been to add a single pole, double throw switch to the KDS unit as shown in the diagram (wave bye-bye to any warranty).

Incidentally, another irritation with *Qualitas* is the necessity to reset the computer and reload if it is desired to change the fonts loaded at the start. Insert the temporary lines into the loader as follows:

```
84 PRINT "Primary Font loaded at";s+1950
86 PRINT "Alternative font loaded at":m:STOP
```

It is now possible to enter Basic from the main menu of *Tasword*, load a new font in place of one loaded earlier with `LOAD "fontname.bin"`, address, and then return to *Tasword* by issuing the command `RUN`.
Tony Cullingworth, Slough

Printing from Mini Office II

For months I have been trying to solve a problem with my copy of *Mini Office II*. Can you help? My Amstrad 6128 is linked to a standard Epson FX-80 printer which is also in use (successfully) with an Apricot. I have tried every software option I could think of, but have been unable to prevent the printer from throwing a blank line between each printed line. Printing is otherwise perfect; it just takes two pages to print every page of text. Is there a software solution or have I got a faulty copy?
C Harwood, Stamford

You haven't got a faulty copy; the double-line feed problem is common with the CPC. There are two solutions. Consult your printer manual on dip-switches. There should be an option to enable or disable automatic line feeds. Set the switch to disable. Alternatively cut wire 14 of your printer cable.

Altering MicroScript

When using the word-processor *MicroScript*, you can define visible equivalents to printer control characters as shown in chapter 13 of the *MicroScript* manual. You can also have these set up before you start by altering *MicroScript's* `SIF` file; as this is important to MicroScript you cannot edit it in the normal way.

To edit type [CRTL-R]. Answer `SCRIPT.SIF` to the prompt. Once you are editing the `SIF` file, you can do all sorts of very useful things. The first six lines contain default screen colours on entry and exit from *MicroScript*. These are the normal Amstrad palette so there should be no problem in changing them.

Second, you can change the default rulers; this is further down the file, but is easily recognised. A word of warning when editing these, make sure you are not in insert mode as the ruler will become active. It is better to have a longer ruler at the top.
James Berry, Hythe

Absolute Beginners

The second in a series of articles taking you from complete ignorance to COMPLETE mastery of Basic

As you discovered last month, PAPER and PEN are powerful commands. INK is even more powerful; in this issue you shall see just how useful.

What exactly does INK do? Well, it is used to replace one of the existing colours held in an ink pot (or PEN). When the computer is first switched on the colour in PEN Ø is blue (that is, INK Ø,1). If you want to replace this try:

```
INK Ø,6
```

The background colour will have changed to bright red. Try replacing the 6 with other values in the range Ø to 26. We listed all the colours and their corresponding numbers last issue. If you don't have that to hand you can try the User Instructions or (if you have a 664 or 6128) look on the top of the disk drive casing.

INK must be followed by two parameters (numbers) at least. In the earlier example, the first number was Ø. This tells the computer that it is ink Ø which is being replaced.

Now reset the computer – see the beginning of the series if you don't know how to do this – and type: INK 1,9

Colour numbers

Ø Black	9 Green	18 Bright green
1 Blue	1Ø Cyan	19 Sea green
2 Bright blue	11 Sky blue	2Ø Bright cyan
3 Red	12 Yellow	21 Lime green
4 Magenta	13 White	22 Pastel green
5 Mauve	14 Pastel blue	23 Pastel cyan
6 Bright red	15 Orange	24 Bright yellow
7 Purple	16 Pink	25 Pastel yellow
8 Bright magenta	17 Pastel magenta	26 Bright white

This time you'll notice the text has turned green (or just darker, on a green screen) while the background stays the same colour. The difference is in the first number after the word INK – the first operand. It tells the machine that it is the colour in PEN 1 (initially bright yellow) which is to be replaced.

Selecting colours

But how does the computer know what the new colour should be? This is what the second operand is for. It can be any number between Ø and 26; depending on which of the Amstrad's 27 colours you want to use. In our example, the second operand was the number nine. This represents green. Try out some other numbers for yourself.

A chart of colours and their corresponding colour-numbers is set out below. 664 and 6128 owners will find the same information on the master colour chart situated on the top of the disk drives. Thus, INK Ø,17 would turn the screen background pastel magenta. If you've got a green screen you won't need the chart: different colour numbers mean different shades of green – the higher the number, the lighter the shade. So, Ø is the darkest and 26 is the lightest.

First Bytes

So, hexadecimal horrifies you? We have the solution in this section devoted to the novice machine code programmer.

In previous issues you have discovered the delights of binary, how to perform simple arithmetic calculations using this number-counting system and how to convert values between binary and decimal. Now it's time to get to grips with hexadecimal.

Hexadecimal is another counting system. Binary (known also as base 2) only uses two characters: 0 and 1. Decimal (base 10) uses the characters 0 through to 9. The hexadecimal numbering system (which is commonly abbreviated to hex) has a base of 16. It uses the characters 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, A, B, C, D, E, F.

You learnt in an earlier instalment that the largest eight-bit (or digit) binary value possible is 11111111_2 or 255 in decimal. This value translates to FF in hex. The obvious advantage of using hex numbers is that any eight bit binary number can be represented by two hexadecimal characters.

Octal

This number counting system – base 8 – uses three binary bits to form a unique symbol. Any combination of three binary bits is represented by a number between 0 to 7. Octal has traditionally been used on older computers which employed various numbers of bits from 8 to 64. You won't hear much of this system now as hex is the standard.

Numeric conversion chart

Decimal	1	2	3	4	5	6	7	8	9	10
Binary	1	10	11	100	101	110	111	1000	1001	1010
Hexadecimal	1	2	3	4	5	6	7	8	9	A

Decimal	11	12	13	14	15	16	17
Binary	1011	1100	1101	1110	1111	10000	10001
Hexadecimal	B	C	D	E	F	10	11

Base conversion

As the base is 16, the ratio between a digit and a neighbour is 16.

```
* 4096    * 256    * 16    * 1

   1        2        3       4
```

For instance, to convert the four-digit hex number A23D to decimal you would follow this procedure:

```
            A   2   3   D

A * 4096   2 * 256   3 * 16   D * 1

A (10 in decimal) * 4096 = 40960
              2 * 256 = 512
               3 * 16 = 48
   D (13 in decimal) * 1 = 13

40960 + 512 + 48 + 13 = 41533
```

Therefore $A23D_{16} = 41533_{10}$

Colour co-ordination

PEN changes the colour that the computer prints text. PAPER changes the background colour that the text is printed on. They each need one operand, specifying which of the currently available colours – the inks – you want to change to.

The Amstrad can display 27 different colours, but not all at once. Depending on the screen mode, you can have a maximum of 16 different colours on screen at any one time. You can select which of the 27 colours you have available to you. You use the INK command to make this selection.

We now know that INK needs two operands. The first tells your Amstrad which PEN colour you wish to replace. The second notifies the machine of the colour you want to replace it with. Do not confuse these two numbers. The first is a PEN number. It has got to be in the range Ø to 3 in MODE 1, Ø to 15 in MODE Ø and Ø to 1 in MODE 2. The second, on the other hand, is a colour number. It should be in the range Ø to 26 – this does not vary between modes.

What a program is

We've reached the point where compound commands are a bit limiting. For one thing, you can only have 255 characters to a compound command. For another, no matter how often you use a command you have to retype the whole thing every time. Suppose, for example, that you often want to change to MODE Ø and select inks Ø to 15. You could do this with a compound command – something like MODE Ø:INK Ø,4:INK 1,22 and so on. To type all this and then get a Syntax error is very frustrating. What's more, the MODE command will clear the screen, so you can't even look at what you typed to see where you went wrong.

The answer is to write a program to do the job. Here's how. First reset the machine and then type: 1Ø MODE 2:INK Ø,4:INK 1,18

You'll find that the computer does nothing at all. Type LIST (followed by return) and the computer will display an exact copy of the line you typed in – except that it'll be in capitals even if you typed it in lower case. The machine hasn't obeyed the commands though. When you type in a number followed by a command or compound command – without pressing return between the two – your Amstrad treats it as something to be stored and only obeyed later. When you want the computer to obey the commands, type RUN. Enter RUN now. What you have typed in is a program. It is a series of commands stored away, and obeyed some time after typing in. All this program does is put you into MODE 2 and set the text bright green against a magenta background. You should see one advantage immediately. Switch the screen to MODE 1 (just type in the command), and change the contents of PEN Ø to black (INK Ø,Ø). To switch back to the previous screen setup of bright green on magenta type RUN. Programs save laborious keying in.

You may wonder at the significance of the number 1Ø you typed at the start of your one-line program. In fact, any other number there would have produced the same result. But, as we'll see next time, line numbers have an important role to play in programs longer than a single line.

Summary

Compound commands are used to give the machine several instructions in one go. They are made by joining commands with colons.
Program is a sequence of commands – separated by colons – that starts with a number. The computer doesn't obey the commands until RUN is entered.
PEN selects the current ink pot that the computer is to use. For example, PEN 2.
PAPER selects the background colour.
INK alters the colour held in a particular PEN.
BORDER changes the colour of the border are. Eg BORDER 12.

Although you won't generally need to go through the rigmarole of converting from one base to another, it is as well to have an understanding of how it works. The fastest way of converting from one base to another is to use Basic's in-built functions. Hex to decimal is unbelievably easy. Say you wished to change A23D to decimal. From Basic type:

```
PRINT &A23D
```

As the number is above &7FFF the decimal number returned will be negative. To produce an understandable result type:

```
PRINT 65536+&A23D
```

Decimal to hex from Basic isn't that much harder either. For example, to convert 348 to hex:

```
PRINT HEX$(348)
```

Calculating hex

It isn't often that you'll want to perform arithmetic using hex, but is a good idea to understand the basic principle. Just remember that if the sum of any column exceeds F, a carry is passed on to the next column.

Large values

In the case of unsigned binary, the largest hex number is FF (255 in decimal and 11111111_2 in binary) for a single byte and FFFF for a double byte (known also as a word).

The largest positive single byte number that can be represented in two's complement format is 7F (127 in decimal). The largest negative number is 80 (-128 decimal). For word values this is increased to 7FFF (32767) for positive numbers and 8000 (-32768) for negative numbers.

For instance:

```
   1F       FF       45      12D      1FE7
+  01    +  01    +  3A    +  FF    +  9109
=  20    = 100    =  7F    = 22C    =  B0F0
```

Hackers Only

The box that caters for the more advanced programmer.

Here's a useful routine that will multiply any two eight-bit numbers and store the result. The E register holds one of the values while the A holds the other. After they have been multiplied together the result is stored in the HL register pair. You could merge this routine with one of the routines published in a previous issue to get the result printed on screen.

Entry conditions: A hold one value, E holds the other. Exit conditions: AF, BC, DE, HL corrupt. Length: 14 bytes. Code type: relocatable.

```
21 00 00            LD HL,0       ;clear HL register
55                  LD D,L        ;clear D
06 08               LD B,8        ;initialise loop counter
           shift
29                  ADD HL,HL     ;acts as a 16-bit shift
17                  RLA           ;rotates multiplier
30 01                JR NC,over    ;tests for
19                  ADD HL,DE     ;adds mutiplicand to HL
           over
10                  DJNZ shift    ;jump loop
C9                  RET
```

Try producing a routine to multiply two unsigned 16-bit numbers together. If you're feeling really adventurous you might like to attempt signed multiplication and division routines.

Bar CPM

From freebies to fully-priced, Richard Monteiro gets to grips with the delights of CPM software

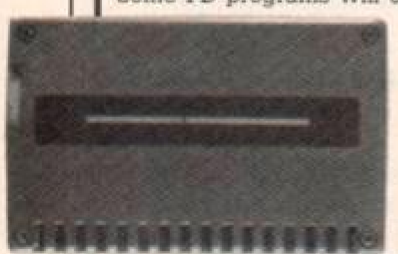
Out of the fire

Gary Kildall originally designed CPM in 1974 to run on the 8080 chip. Since then it has been tailored to work on a multitude of machines – including Z80 based machines like the Amstrad. There are over 100 different computers that can work under the CPM environment. Because so many machines use this standard, implementing existing software on a new computer is relatively painless.

There is a wealth of untapped CPM software just waiting to be exercised on your CPC machine. Much of this is available in the form of public domain software and shareware. It won't cost you an arm or a leg either: public domain is free. Yes, free!

CPM plus on 464s and 664s

Some PD programs will only work under CPM 2.2, most will work with both versions, but other heavy-duty programs require CPM plus. It is possible to use CPM plus on the 464 or 664, but you need an extra 64k of memory first. The Dk'tronics ram pack is the best. This is available from Ram Electronics (0252 850085) at £40.95. You'll also need to purloin the CPM plus system disk – but before going to such measures try CPC Ltd on 0772 555034.



Several public domain (PD) libraries are dotted around the country; these usually charge a nominal copying and handling fee. You can do what you like with PD software, copy them, give them to your friends or feed them to the cat. The copyright of such software remains with the author, but he or she has given permission for the software to be copied and distributed freely in this manner.

Public domain software originated in the states – usually from programmers who had to write a piece of software to tackle a particular task. Being benevolent beings, the programmers would pass on their products for the benefit of others and, of course, to advertise their talents. Oddly little PD software is written in the UK. It is usually imported from abroad by means of bulletin boards.

Shareware is similar in concept to public domain: it it free and you are allowed to hand out copies. However, if you find a program of use, the authors generally prefer you to send them some cash. In return you may receive an updated version and a manual. It also gives the programmers incentive to work on their next project. You aren't obliged to send money, but many people do.

Free software

Most public domain software is CPM based. Amstrad 664s and 6128s come with a built-in disk operating system, Amsdos. 464 users can upgrade to a disk based machine by purchasing the DDI-1 drive from Amstrad (0277 2288889 at £159.95). With the computers (or DDI-1) you get another operating system on disk: CPM. Amstrad 464 and 664 users are given CPM 2.2 while 6128 owners get CPM plus (also known as CPM 3.1).

The acronym CPM stands for Control Program for Microprocessors or Control Program and Monitor – it depends on which authority you



believe. Digital Research, who market the operating system, don't seem to care and simply refer to it as CPM.

CPM is a link between the computer's hardware and any application software. It handles all the interactions between the central processing unit and all the peripherals (screen, keyboard, printer and disk drive).

Feedback

Over the next few months we shall be uncovering CPM's secrets and looking at the many programs available, but we need your help. Are you using a piece of CPM software – public domain or full-price – that is worth a mention? Do you know any good sources of PD software? If you do, write in and tell us. Where possible include the name of the program, the address and phone number of the User Group that you got it from, and a brief description of what it does. Write to **Bar CPM, Amstrad Action, 4 Queen Street, Bath, BA1 1EJ.**

Different versions

The main difference between CPM 2.2 and CPM plus is the amount of useable memory or transient program area (TPA). This is the amount of space you have to load an application. CPM uses the extra bank of memory that the 6128 kindly has to offer – hence the greater TPA.

CPM 2.2 has a smaller TPA and only works with system or vendor formatted disks. You won't normally be able to swap disks without informing the operating system that you wish to do this.

These and other frustrating quirks have been expelled from the later CPM plus.

Where to go

If you want to get hold of public domain software, there are several sources which may be of interest:

CPM User Group: 72 Mill Road, Hawley, Dartford, Kent, DA2 7RZ
PD Software: Winscombe House, Beacon Road, Crowborough, East Sussex, TN6 1UL
Triple Zero Services: 23 broad Lane, Essington, Nr Wolverhampton, Staffordshire, WV11 2RG
PD-SIG: 90 Braybourne Close, Uxbridge, Middlesex, UB8 1UJ

Most of these firms publish a newsletter and have vast software libraries; not all will be of interest to you. There is usually a subscription and copying fee for each disk. Do remember to enclose a SAE when enquiring.

User clubs are also a good place for getting public domain. Wacci (0895 52430) in particular have a selection of disks crammed with stuff. Well worth checking.

If you have a modem, you can download software from bulletin boards. Try 0462 700893 during 10pm and 8am or 0902 788683 morning or evening.

Before you order disks and disks full of PD software, you might like to try getting your hands on *The Free Software Handbook*. This book published by PeopleTalk Associates covers the best public domain software available. It is updated every year. Its ISSN number is 0742-048X.

Basic Word-Processing:5

The fifth in a six part series by Bill Simister on how to create and use a word-processor entirely in Basic.

```
10 REM
20 REM BASIC WORD-PROCESSING
30 REM
60 KEY 129,"PRINT #S,":KEY 130,"CLS:LIST 1000-"+CHR$(13):KEY 128,"
RUN"+CHR$(13):KEY DEF 10,0,162:KEY 131,"WORDUSE1"
70 INK 0,23:INK 1,0:BORDER 23
80 MODE 2:WINDOW 7,72,1,25
90 S=0:A=1:REM PRINT #S,CHR$(27);"U";CHR$(1):PRINT #S,CHR$(27);"1"
:CHR$(6):PRINT #S,CHR$(27);"A";CHR$(24):PRINT #S,CHR$(27);"p";CHR$
(1):REM paging to 5 (incl)
100 REM PRINT #S,CHR$(27);"C";CHR$(33):PRINT #S,CHR$(27);"N";CHR$(
7):REM Skip perforations routine to make pages.
110 REM PRINT #S,CHR$(27);"j";CHR$(255):PRINT #S,CHR$(27);"j";CHR$
(255):WIDTH 66:GOTO 400:REM Routine to position the first number c
orrectly.
120 TROFF
130 WIDTH 66:GOTO 1000
400 REM routine to print page numbers
410 FOR q=1 TO 30
420 PRINT #S,SPC(28);A:A=A+1
430 PRINT #S,STRING$(31,CHR$(10))
440 NEXT
450 STOP
900 REM To start set leading edge of paper 1/8th. inch beyond the
     ribbon edge.
1000 PRINT #S,SPC(17);"BASIC WORD-PROCESSING":PRINT #S,SPC(21);"by
 W. Simister":PRINT #S,SPC(24);"Part One":PRINT #S
1010 PRINT #S,"    The trouble with  'word-processors'  is that th
ey are written by programmers who think in a complex manner.  They
 are difficult for a writer to understand:  he is impatient to get
 on  with  his"
1020 PRINT #S,"'piece', and cannot spare enough of his mind to dea
l with the     intricate and ambiguous instructions that often acc
ompany word    processors."
```

In the previous four parts I have explained the commands to the computer and printer contained in the Basic Word Control program: in the next two parts I will deal with using it.

We make a start by typing 1010, a space, press Key 1 (in the numeric keypad), shift 2, then leave four spaces, and type the following text.

```
1010 PRINT #S,"    He stared at me steadily for a moment, then sai
d quietly,     "You seem to have failed to tell him anything about
 me, Bill."    His voice held a note of reproof."
```

This prints on the screen like this:

```
    He stared at me steadily for a moment, then said quietly,
"You seem to have failed to tell him anything about me, Bill."
His voice held a note of reproof.
```

After studying that go back to LIST and examine the way it has been typed, paying particular attention to spacing. Because the **WINDOW 7,72** allows 66 characters to a text line, the second line starts immediately below and after the apostrophe after **PRINT #S,**. Therefore there must always be a space under that first double apostrophe after **PRINT #S,"** for that position in the next two text lines under that apostrophe, is the start and finish of any text line on the page or screen. Try typing it without starting each new line at that place thus:

```
1010 PRINT #S,"    He stared at me steadily for a moment, then sai
d quietly, "You seem to have failed to tell him anything about me
, Bill." His voice held a note of reproof."
```

That one prints out like this:

```
    He stared at me steadily for a moment, then said quietly, "Yo
u seem to have failed to tell him anything about me, Bill." His v
oice held a note of reproof.
```

The result is that both "you" and "voice" are split. You may consider that this is liable to be a hitch in one's speed of writing. It isn't really. I have used this program for over a year, and during that time have often exceeded five thousand words a day. At first I used to just type without taking any notice of spaces to line up the first words in the lines. Then, after a para or two, when it came time to check for mistakes and grammatical errors, I went back over it putting in the spaces as I went.

```
1020 PRINT #S,"    He turned slightly, his face expressionless as
he looked across the table at Jamie. His voice was quiet but full
 of menace as he said, "One more remark like that, and you'll fin
d out why"
1030 PRINT #S,"They call me Viking."
1040 PRINT #S,"    He continued to stare until Jamie dropped his g
aze. Then, apparently satisfied, he continued in the same tone."
1050 PRINT #S,"    "You and Bill will turn up there as I told you
without any questions. Is that clear?"
1060 PRINT #S,"    At the simple nod from each of us Viking relaxe
d, glanced down at our glasses, and stood up. "While I'm getting
us another drink," he said to me, "tell him." And he nodded tow
ards Jamie."
```

After a few weeks, however, I found I was automatically spacing out the words as I came to one of those "gaps under the apostrophe", and soon it was second nature.

The point is that the program makes it very easy to look back over any part of what you have written, and alter it in any way you wish. To illustrate that I will enter more lines in that story of which we have written just the start; this time just writing without checking the spaces for line starts.

```
1020 PRINT #S,"    He turned slightly, his face expressionless as
he looked      across the table at Jamie. His voice was quiet but
 full of menaceas he said, "One more remark like that, and you'll
 find out why"
1030 PRINT #S,"They call me Viking."
1040 PRINT #S,"    He continued to stare until James dropped his g
aze. Then,     apparently satisfied, he continued in the same tone
."
1050 PRINT #S,"    "You and Bill will turn up there as I told you

without any    questions. Is that clear?"
1060 PRINT #S,"    At the simple nod from each of us Viking relaxe
d, glanced     down at our glasses, and stood up. "While I'm gett
ing us another drink," he said to me, "tell him." And he nodded
 towards       Jamie."
```

That is enough to show what I mean. In those few lines there are many instances of where words will be split by the line end.

Run it yourself. Words I can pick out by just looking at it are: across, he, apparently, questions and drink. To change that is simple. Here it is corrected.

You will see that I have allowed "menace" to creep onto the space, so that menace/as are together. It is all right to do that, but you must never allow what is to be a first word in the text line to encroach on that space: end of a line, all right; start of the line, not all right.

In the previous part I emphasized that the Copy Cursor method of editing suits me best. It is particularly good for what we have to do next. That first line, 1010, starts the chapter, but throws the remark into a bare room - there is not a hint of the surroundings. We should add something more to make it sparkle.

With the Copy Cursor method we bring it to the foot of the page. This is done by using shift to send the cursor up to that line, holding the shift down while doing so. In this way we have two cursors: one being held at the page bottom by the shift, and the other moving, with the "up" arrow, to the line. Then release the shift, and use the Copy key to run along the line while at the same time a copy of the line is appearing at the bottom. Stop moving the top cursor with the copy key at the place you want to add in the extra wording. When you are satisfied with it, use the Copy Key to put in the rest of the line. If you have written too much for the line, then add a new program line: 1012. Into this up to three more lines can go. Then, with your copy lines at the bottom now completed, you press enter, and the copied line will be put into its place in the list.

```
1010 PRINT #S,"    He stared at me steadily for a moment, the hum
of voices from the crowd at the bar making our stillness and scare
d silence more pronounced as he said quietly, "You seem to have f
ailed to tell"
1012 PRINT #S,"him anything about me, Bill." His voice held a not
e of reproof, which, from him, was serious indeed. I stared in a
pprehension at his small, well-dressed figure. I knew such a tone
 of voice"
1014 PRINT #S,"could well lead to violence."
```

WATCH THE SKIES!

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Talking Turtle

Richard Monteiro thumbs through the pages of two new books on programming

S Wainwright

Basic & Logo in Parallel

Bernard Babani, ISBN 0 85934 171 2, 150pp paperback, £2.95

Bernard Babani, the budget book barons equivalent to money-minimal Mastertronic, have released a steady stream of low-cost titles over the years. Many have been computer-specific. *Basic & Logo* is relevant to most 8-bit micros with a built in Basic. Although the book takes BBC-Basic as standard, most of the example listings work on the CPC with little or no modification. The version of Logo discussed is the DR Logo that comes with all disk-based Amstrad computers.

Within his book, Wainwright attempts to sway the popular belief that Logo is purely a powerful graphics programming language, used for controlling "turtles" in schools. By examining Basic and Logo in parallel the author demonstrates Logo's extensive arithmetic and list-processing capabilities.

Logo and Basic can be used in direct or immediate mode, that is, commands can be entered directly without the need for the instructions to be part of a larger program. Wainwright points out that they are ideally suited for performing simple calculations. Although Logo hasn't as many in-built arithmetic operators as Basic, it is an expandable program which means things like DIV and MOD can be added to its vocabulary.



The method for implementing graphics, programs and procedures, conditional loops, arrays and many other topics is covered adequately for both languages. The closing chapter of the book has a listing of a Logo graphics interpreter; this is possibly the only section that won't be of any use to you as Logo comes bundled with disk machines.

Apart from a few BBC-Basic quirks to contend with – REPEAT UNTIL loops, for instance, which can easily be modified to WHILE WEND loops (as long as you remember that the condition in a REPEAT UNTIL loop is specified by UNTIL and in a WHILE WEND loop by WEND) – you should find *Basic and Logo* relatively straightforward. The book contains interesting subject matter, plenty of practical examples and at £2.95 represents tremendous value for money.

In the beginning

Both Basic (Beginners All-purpose Symbolic Instruction Code) and Logo were developed during the 1960's. Basic was developed at Dartmouth College (USA) by John Kemeny and Thomas Kurtz in 1964. Seymore Papert, Wallace Feurzig and Daniel Bobrow of Cambridge, Massachusetts, were responsible for the design of Logo.

Basic and Logo were created to make the programming of computers easier; for this reason they are known as high level languages. Both are interpreted languages which means that each line of the program is translated into machine code and then executed.

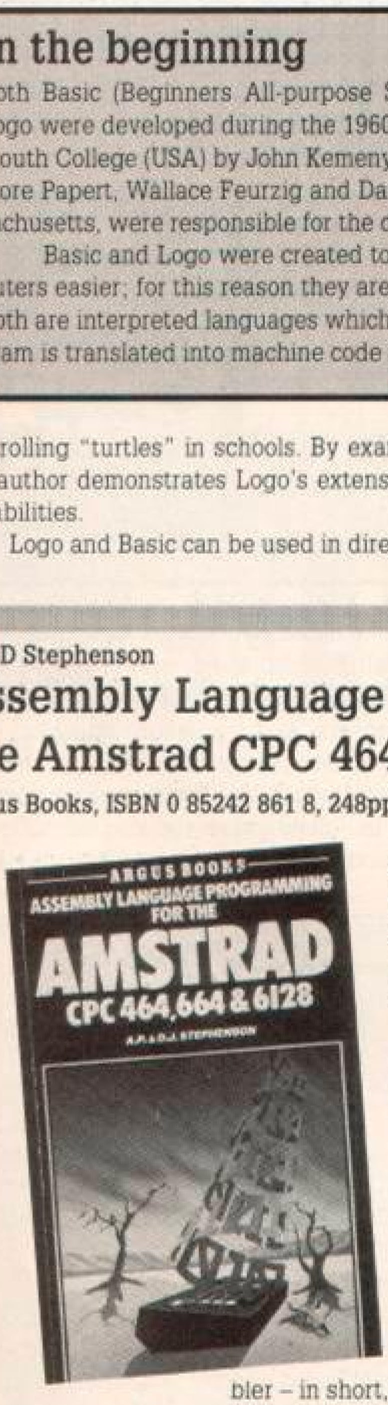
Bernard Babani Publishing ☎ 01 6032581
The Grampians, Shepherds Bush Road, London, W6 7NF

GOOD NEWS	BAD NEWS
■ Shows that Logo is more than just a graphics language. ■ Teaches you how to get the best from Logo and Basic. ■ Price goes down a treat.	■ Not wholly relevant to the CPC machines.

A & D Stephenson

Assembly Language Programming for the Amstrad CPC 464, 664 & 6128

Argus Books, ISBN 0 85242 861 8, 248pp paperback, £7.95



Assembly language programming books for the beginner abound, but there are few that go further than the introductory stage. Although this book by A and D Stephenson introduces you to the concept of assembler, most of its pages describe practical programming applications and how to achieve certain tasks.

It starts with the pros and cons of Basic, the differences between Basic and assembler, and why it would be a good idea to learn assembler – in short, why you should read the book.

Before you get down to the nitty-gritty of bits, bytes, peeks and pokes, *Assembly Language Programming* takes you on a guided tour of the Amstrad's hardware.

Binary and hexadecimal numeral systems are handled admirably, but could have been improved with the addition of problems. The authors redeem themselves by ending each chapter with a comprehensive summary.

Although the authors claim that you can get by without an assembler, they do make several references to Hisoft's *Devpac*. Perhaps a few pages donated to a Basic assembler listing wouldn't have gone amiss?

Some of the most useful chapters – especially if you've got a fundamental knowledge of assembly programming – include those that deal with conditional branching or jumping. Listed are the correct methods for testing for certain conditions and then jumping. Very handy if you're not too strong with JP, Z, JR C, JP NC and so on.

There are numerous assembly listings, explanations of what they do and how they could be altered. The routines include keyboard input, text output, sorts, printing, addition and other mathematical functions, loops and simple graphical animation. The book also delves into CPC-specific topics like the screen layout, RSX (bar) commands and passing parameters to machine code.

Assembly Language Programming is probably the best aid to learning assembler at present. It is packed with useful information and example programs. If you want to program, this is the book.

Argus Books
1 Golden Square, London, W1R 3AB

GOOD NEWS	BAD NEWS
■ Excellent book for developing a little knowledge of assembler. ■ Handy hints on how to perform programming feats. ■ Well written and presented.	■ A few problems wouldn't have gone amiss.

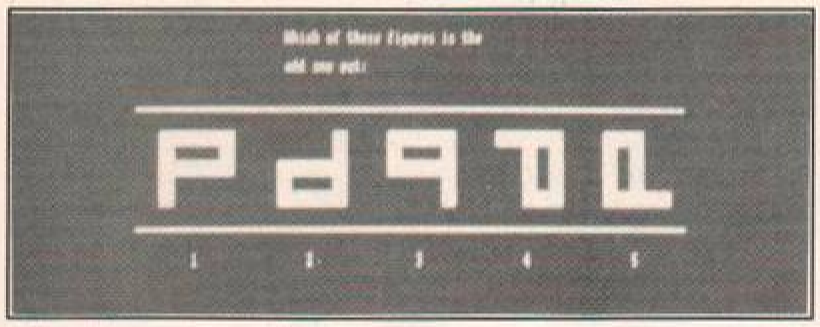
Full of PEP

A novel new personal performance tester puts Richard Monteiro through his mental and physical paces.

Personal Excellence Package

Iansyst, £24.95 disk, CPM Plus only

After a long period of quiet on the CPC, Iansyst have sprung back to life with *Personal Excellence Package* (*PEP*) – a collection of personality, intelligence and agility tests for the recesses of your psyche to wrestle with.



● One of the questions from the intelligence test

There are four sections to *PEP*: Intelligence, Personality, Performance and Mental. Each part consists of a series of tests. The first section, Intelligence, is designed to measure your Intelligence Quotient (IQ). IQ testing has come under fire for some time (see box), but is still fun – and you never know, you might be worthy of MENSA membership.

Four IQ tests exist; they must be done in order, preferably on different days and in absolute privacy. Each test takes twenty minutes – if you're in an office take the phone off the hook and lock your door – and there's no going back once you've started. You have 20 minutes to answer 32 questions (roughly 30 seconds per question). You can't save time by answering one question quickly and moving on to the next – you have to work to the test's timetable.

Obviously you become accustomed to the way the questions are thrown at you, which explains why each successive test is just a touch harder. After every test a score will appear. The average is 100. Iansyst claim their tests have been accurately tested between 90 and 140. Over 140 and you're nearing genius level.

The IQ controversy

Intelligence Quotient (IQ) testing is designed as a measure of intelligence. Results are usually calibrated against the established Wechsler scale; the average being 100 points.

From its origins, just before the first World War, intelligence testing has aroused a constant clash of opinions. The reasons are numerous:

- A test hasn't been devised that is utterly free from cultural bias.
- Different tests produce different results.
- An individual might produce dissimilar results at different times.
- No universally-accepted definition of what constitutes intelligence exists.

IQ tests may be imperfect, but they are still the best method of predicting an individuals set of mental abilities.

There should be little difference in your score after each test although – say Iansyst – nerves, illness, tiredness, distractions and computer phobia can all produce results below your true potential.

On completion of the four tests you have the option of viewing your results. The computer will send an analysis to either screen or printer. Your logical, numerical, verbal and visual strengths (and weaknesses) will be pointed out, together with your overall IQ and your percentage placing in the nation's intelligence charts. The latter result is always phrased extremely politely – even if you are in the top 91% of the population.

Hidden meaning

The second section, Personality, is where your personality (what else) comes under fire. This section is split into two: one part to assess your public persona and the other to deduce your private persona. Each part hits you with 100 questions after which the computer reports back on 13 different aspects of your personality.

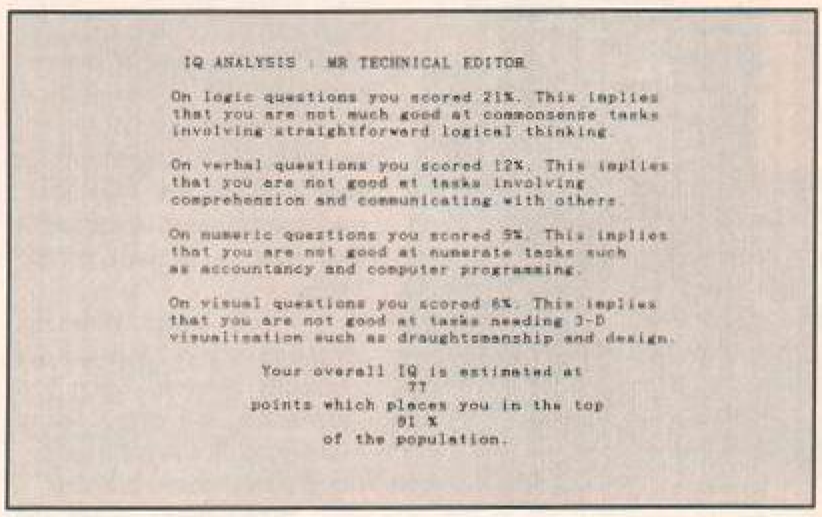
The real you?

Although Collins have stopped publishing *The Real You?*, it is the only other product to have appeared on the CPC that allows you to discover your IQ and personality.

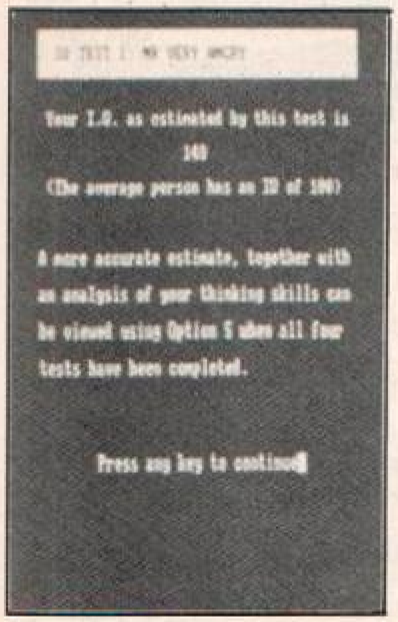


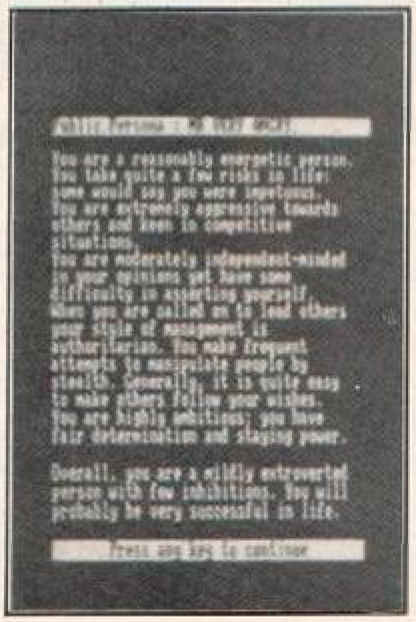
The *Real You?* provides 16 tests covering work, intellect, personality, lovelife, anxiety and views. If you want to know whether you're a true snob, a latent radical or a good lover then this could be the package for you. The problem is finding it. The murkiest depths of computer stores is a good starting point. Back in 1985 it cost £14.95 on cassette; if you do locate a copy don't pay over the odds.

The public persona test uncovers your leadership qualities, your drive and your ability to organise. Private persona deals with your social skills, your relationships and your personal life. There are four possible responses to a statement such as "Slow drivers make me furious": strongly agree, agree, disagree and strongly disagree. The idea is to answer the questions quickly, without thinking too much about them. Of course it isn't hard to fool the computer and lead it up the wrong track – for instance, to make yourself appear cheerful, generous and kind.



● The Technical Editor on a good day



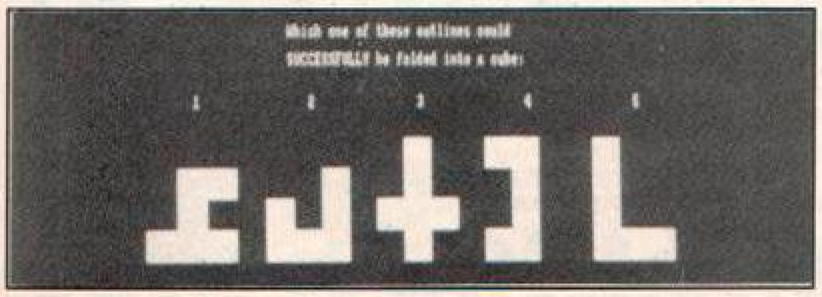


● The truth is always hard

Far better results are obtained by getting someone else, who knowsyou well, to answer the questions. Whether you really want to know the truth is another matter. Both personality tests should be taken with a pinch of salt; don't attach too much importance to the results. At the end of the day they are fun and amusing, and the outcome can be arranged.

On the ball

The Performance section allows you to measure your mental effectiveness depending on various external factors. Each test can be repeated as often as you like, under different circumstances. The records are



● How good are you at 3D visualisation?

stored on disk and can be viewed or printed at any time. These tests are supposed to be taken over a period of time; in this way a true picture of when you are at your best and worst can be painted – you could theoretically plan your working day around the results. But you'd have a hard time convincing your boss that it was only worth your while working between 2pm and 3pm on Tuesdays.

There are three tests: circadian rhythm, alcohol effects and stimulant effects. The first measures the variation in your mental performance at different times of the day. Everyone finds that their mental speed and accuracy vary during the 24-hour cycle. For example, some people find that they can achieve a lot in the morning and gradually slow down during the day. Conversely, others have a slow start and increase in pace as the day draws to an end. By knowing when you're at your peak, you can decide when to make those vital business phone calls and when you're likely to score highly in tests.

If you have had a night out on the tiles or are suffering from influenza, your performance can be effected. It can't all be blamed on your circadian rhythm. The second test determines your performance according to the amount of alcohol coursing through your veins.

Only do this test if you're over 18 and you don't intend driving – it's not an excuse to drink the pub dry during your lunch break. The test asks you how many units you have drunk; typically one unit counts as half a pint of lager or a spirit. After that you have to keep a cursor close to another object on the screen. You must repeat this several times with different levels of alcohol inside you. The test is only calibrated to a maximum of 16 units; presumably after that time you won't even be able to find the computer.

You should find that a small amount of alcohol will improve your co-ordination, but after the break-point your performance drops rapidly. We'd like to remind you that this is an interesting test to do, but you should never drink and drive – whatever the test says your co-ordination is like.



One lump or two?

The last of the performance tests records your reaction speed and shows you how drugs – caffeine and medicines, say – effect your nervous system. The idea is to tap the space bar as quickly as possible when prompted.

Stimulants like caffeine (present in coffee and tea) increase reaction speeds, whereas sleeping pills and antihistamines will slow you down.

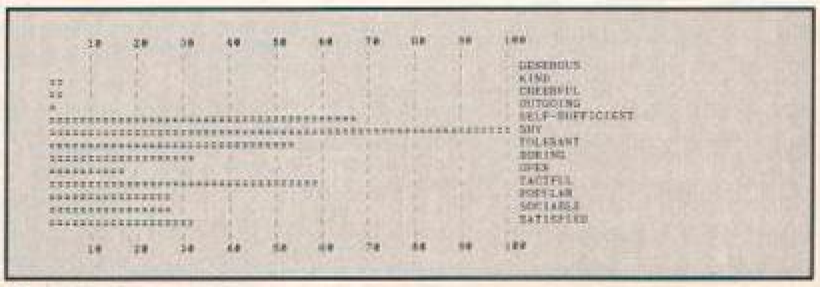
The final section – which contains three sub-sections – enables you to practise several mental skills. The first of these is called the X Factor. It claims to be able to generate an infinite number of random logical and mathematical questions. There is a time limit in which you must answer as many questions as possible. Your first attempts will undoubtedly be poor, but once you get to recognise the style of questioning it shouldn't prove too difficult.

Next in line is the Typing Test. This, obviously enough, measures your typing speed and error rate. The computer displays 12 sentences for you to enter. Only the fastest ten results are taken into account. No matter what your keying-in speed, the program always tells you that you would benefit from using one of Iansyst's keyboard training products.

Memory Test is the concluding part to *PEP*. Its function is to assess how much information you can hold in your short-term memory. The computer displays a sequence of numbers for a few seconds, after that time you must enter the numbers back in in the same order. As you progress the sequence becomes larger.

Crash course

Once you've done the IQ tests, checked your typing skill, had a giggle at the outcome of your personality test and got blind drunk while assessing your performance, it is unlikely that you will go back for more.



● The Editor's a cheerful chap – honest

You can't do the intelligence tests a second time as you'd get a false result – and you'd only be fooling yourself. The same can be said for the personality tests; once you've done them the thrill wears thin.

The Mental Exercise section is the only one with lasting appeal, but even that pales after a while. *PEP* is certainly entertaining and the things you find out about yourself can be interesting, but it tends to lose its appeal quickly. Doubtless you can think of many entertaining uses for the tests like personnel selection, party games, an educational tool or even to convince the nice officer that you haven't really had too much to drink.

Iansyst ☎ 01 6075844
Omnibus Building, 41 North Road, London, N7 9DP

GOOD NEWS	BAD NEWS
■ Interesting uncovering the truth about yourself. ■ Can check your IQ in private. ■ Certain tests can prove amus-	■ Loses its appeal because most of the tests can only be done once.

24-Pin Print Power

Amstrad's new 24-pin printer is put through its paces by Richard Monteiro

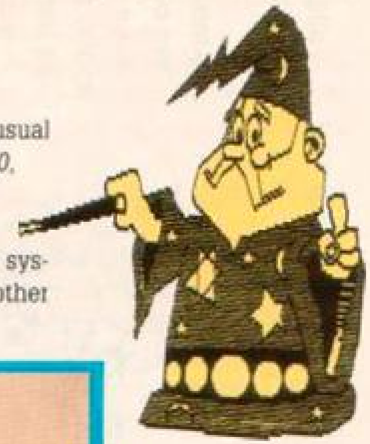
LQ3500, Amstrad, £401.35 rrp

Amstrad has entered the world of 24-pin dot-matrix printers, with a machine costing several hundred pounds less than anything offered by the competition.

The reason Amstrad manages to pump out goods at such incredibly low prices is because the specification of the products are usually cut to the bare minimum. This is true of the LQ3500 which has a plastic look and feel. Although this cheap design means the LQ3500 is not the most robust of printers, it provides a cheap method for getting the facilities of a 24-pin printer.

Feel the width

Amstrad have departed from their usual flatbed design – typical of the *DMP2000*, *3000* and the more recent *3160* – and plumped for a more conventional style. A shame, as the old front loading system is neat and much less trouble than other paper-loading systems.





Twenty-four pin printers are renown for their speed and print quality. Their speed, particularly in letter-quality, is due to the single pass of the printhead required to create each line. And because 24-pin printers use more dots to make up each letter, the quality is higher.

In draft mode the *LQ3500* manages 70 characters per second. This is reduced to 30 cps in letter-quality mode. Amstrad's figures claim 135 cps in draft and 62 cps in letter-quality. Like most manufacturers, Amstrad quotes speeds that are unlikely to be reached in practical use. Their results are measured under the best possible conditions and don't take into account the time taken for the printhead to move to the start of a line or to feed the paper.

The *LQ3500* has one font for its letter-quality mode and another for draft. Text can be printed at 10 or 12 characters per inch, condensed to half size or expanded to double width. Underline, italics or bold may be added to text to give it extra sparkle. The printer can't produce italics nor condensed text in letter-quality mode. Oddly, this is a problem that many NLQ and LQ printers suffer from.

Most printers use different size character sets for the various pitches available. Not the *LQ3500*. It simply squeezes the standard size set into a smaller space – not very professional looking.

Draft abcdefghijklmnopqrstuvw
Letter Quality 1234567890!"£$%
Bold
Underline
Condensed
Double Width
Both [illegible] and subscript

The 24-pin difference

Most dot-matrix printers are of the 9-pin variety (although machines like Amstrad's 24-pin printer are rapidly gaining in popularity); these produce a dotty output rather than the clean typeface of a daisy-wheel.

The printhead of a 24-pin printer has two rows of 12 pins set closely together. As the printhead moves along the carriage, characters are formed. The principle is the same for 9-pin printers. Both types of dot-matrix printer have a good quality print: called NLQ (near-letter quality) on 9-pins and LQ (letter-quality) on 24-pins. As 24-pin printers have more pins in the printhead than 9-pin models, they only use one pass of the printhead to form characters.

Speed and almost typewriter-quality print are the advantages of the 24-pin breed.

Down in the dumps

The *LQ3500* uses both Epson and IBM codes to control its various printing effects (many are also selectable via a small dip-switch located at the back of the machine). Switches on the front panel allow quick access to draft or letter-quality print.

Most features expected of a 24-pin printer are present on Amstrad's *LQ3500*. The design is a little flimsy and may not hold up to rough treatment, but it has a vast range of printing functions, has reasonable quality print and is very competitively priced.

Twenty-four pin printers are no longer a rich man's sport; Amstrad have once again proved that anything other firms can produce, they can produce cheaper.

Amstrad ☎ 0277 228888
169 King's Road, Brentwood, Essex, CM14 4EF

GOOD NEWS	BAD NEWS
■ The cheapest 24-pin printer. ■ Near-letter quality print is good. ■ Large range of typestyles and fonts. ■ Superior print quality to DMP printers.	■ Comparatively slow for a 24-pin. ■ Doesn't seem particularly robust.

Next in line

Amstrad's printer comes in at £401 plus a few pennies. Its nearest rival is Epson's *LQ-850* which costs £625; many cost upwards of £800.

For the extra £200 pounds you get a fast, sturdy, multi-font machine. The *LQ-850* is capable of just under 50 characters per second in letter-quality mode and 110 in draft. This is approximately 40% faster than Amstrad's printer, and nearly 40% more expensive.

There are a choice of two letter-quality fonts, Roman and Sans Serif. Courier, Prestige or Script can be added by plugging in a font cartridge. Fonts may be effected: condensed, italicized, enlarged, underlined and so on.

Selecting a font or pitch (character spacing) is easily done from the control panel – no messing around with dip switches or software control codes.



There's no denying that Epson's printer is a powerful beast, but there's also no justifying £625 on a printer (twice the price of a CPC) for home use. Business, yes.

Wysiwyg Printing

Richard Monteiro reviews a new printer utility in which what-you-see-is-what-you-get.

Screen Master

KDS, £29.95 disk only

Screen Master is a printer utility similar in nature to Tasman's *Tas-sSign* (reviewed issue 24); enabling you to create poster-size printouts. KDS releasing a software package comes as a surprise because their previous ventures have been hardware orientated. These have included the 8-bit printer port, mini-max modem, serial interface and so on.

KDS's program works on a what-you-see-is-what-you-get (WYSIWYG) principle; anything that appears on the computer screen will be replicated on paper. The screen has one line taken up by an eight-option menu, the rest is reserved for your design.

Most options are selected with the use of the cursor cluster. A stab at the return or enter key will either cause a window to appear – filled with a further menu – or executes the highlighted option.

First on the eight-option menu is File. As the name implies, all file-handling tasks take place here. Standard or compacted screens may be loaded or merged into *Screen Master*. Similarly standard screen-files may be saved and then used in your own programs. You could design a screen within the *Art Studio* or some other graphics package, load it into *Screen Master* and then proceed to print the picture.

User-defined graphic characters and background textures may also be loaded and saved. It is possible to customise *Screen Master* and then save the customised version. This will load automatically whenever you run *Screen Master*.

8-bit printing

Screen Master has an option for 8-bit printer output. You do need a suitable interface though, and KDS supply such a port. It costs £19.95 and is compatible with both CPM and Amsdos. The port may be used from other programs like *Tasword*, *Protext* and *Qualitas*. Having the port means you can access characters above Ascii 127 and printer dumps don't have ugly lines running through them.

Boxes and text

From the Work menu you can enter text, draw free-hand, create boxes or oblongs and edit either screen or graphics. Before entering text or graphics symbols, a box appears which can be increased or decreased in any direction. When text is eventually entered it takes the shape of the box; in this way text of any height or width can be created easily. Even when the text has been planted on the screen, you can position it elsewhere and alter its size.

Sadly only the Amstrad character set is available for use. If you want to use other fonts then you'll have to design them yourself.

Free-hand drawing allows you to select a character or graphic symbol and plaster it liberally over the screen. Although this option has its uses, it would be greatly improved if there were a selection of pen sizes with which to draw. In this way you could draw anything from a single pixel (or dot) to an eight by eight matrix of dots. By using the edit option it is possible to plot or remove individual dots – laborious.

Boxes are ideal for highlighting sections of a poster or notice; *Screen Master* allows you to define boxes or rectangles in a number of border-styles.



The Mode menu allows you to perform operations that affect the whole screen. For instance, opaque or overwrite mode ensures that text written to the screen will destroy anything previously positioned underneath. Transparent mode does the opposite: new text will mix with previous screen contents. Inverse alters everything on the screen from black to white and vice versa.



Screen Master operates in Mode 2. If you try and load images created in other Modes the result can look odd. For this reason KDS have included a routine that converts either a Mode 0 or Mode 1 screen to Mode 2.

Further full-screen functions are available from the Screen menu. Screen clearing, left to right reversing and flipping from top to bottom are available.

If it's sections of the screen you wish to manipulate then the Block menu is the place to go. Blocks may be defined and then cleared, inverted, moved, copied, reversed from left to right, flipped from top to bottom and rotated in any direction by 90°.

Printing partner

The composition of text and graphics characters is easily altered from the Texture menu. There are six hatches or patterns to choose from, but if none take your fancy you can design your own from the Work menu. Using a similar method, the background pattern may be changed. Again there are six textures to choose from, and others may be designed.

Arguably the most important section within *Screen Master* is the Printer menu. From it you can print standard size screen dumps or enlarge the output – either horizontally or vertically – by factors of two, three, four or eight using any Epson compatible machine. As you can see, it would be very easy to paper your walls with the output. Printing takes place either across or down the page.

There are options for either seven or eight-bit printer output. If you don't have KDS's 8-bit port then you must select the seven-bit option. This option needs no interface; it prints seven lines of dots, missing out the eighth line (or bit). But don't worry, gaps don't appear in the printout as the line spacing has been specially tailored. In most cases the output is perfectly acceptable. Of course, for the best possible results the 8-bit port comes in handy (see the box on 8-bit printing).

The version of the program tested had a couple of bugs, which KDS are aware of. They aren't serious – a window handling problem and text not behaving as it should on screen – and KDS are working on rectifying them. For an easy-to-use way of creating eye-grabbing posters, *Screen Master* is the business. The pop up windows and obvious controls mean you'll get down to designing a lot faster than with many other packages – the manual is virtually redundant. There are relatively few printer utilities about: KDS's offering is very welcome.

KDS Electronics ☎ 04853 2076
15 Hill Street, Hunstanton, Norfolk, PE36 5BS

GOOD NEWS	BAD NEWS
■ What you see is what you get. ■ Comprehensive text handling facilities. ■ Good range of printing options. ■ Makes use of 8-bit printer port if you have it.	■ Limited freehand drawing. ■ Version tested had a couple of bugs.

HOT TIPS

Pat McDonald takes over at the Hot Tips helm this month. He wants to know if you have special tricks and tactics with serious software and hardware? Send them to Pat McDonald, "Hot Tips", Amstrad Action, 4 Queen Street, Bath, BA1 1EJ. Remember the best tip each month gets £20.

A4 Label printer

This is probably the most useful program (apart from my word processor) that I have. It prints out lbels for envelopes. It should work for any Epson compatible printer. Three things should be done before using it:

1. Set the printer to friction feed.
2. Set the paper thickness to allow for maximum thickness of paper.
3. Slide the envelope into the back of the printer. A good tip here is to use listing paper or A4 pages cut into envelope sized rectangles.

```
1Ø PRINT #8,CHR$(27);"1";CHR$(3Ø);
2Ø PRINT #8,CHR$(27);"x";CHR$(1);
3Ø PRINT #8,"Amstrad Action"
4Ø PRINT #8,"4 Queen Street,"
5Ø PRINT #8,"BATH,"
6Ø PRINT #8,"BA1 1EJ"
```

Cormac McGaughey, Cushendall

Danish hoard

Have you wondered how Rainbird made their character files on the *Art Studio*? Well here you have it in the form of a short listing.

```
1Ø SYMBOL AFTER 32:H=HIMEM+1
2Ø SYMBOL 32,N1,N2,N3,N4,N5,N6,N7,N8
```

Of course, that's only part of the listing. The full program must generate the characters from 32 to 9Ø. To save the set enter `SAVE "filename",B,H,472`.. If you want to load it back just enter:

`SYMBOL AFTER 32:H=HIMEM+1:LOAD "filename",H`

To see the name of the last file saved enter:

`FOR A=&A7AØ to &A7AA:PRINT CHR$(PEEK(A));:NEXT`

For the name of the last loaded file use:

`FOR A=&A7ØA to &A714:PRINT CHR$(PEEK(A));:NEXT`

Finally, for disk owners, here's a poke which switches between the A and B drive: `POKE &A7ØØ,x` where x=Ø for drive A and 1 for B.

Mads Rasmussen, Denmark

Machine code character dump

This routine is really a follow up to RpM's text dump program in February's AA. Although his program was short and neat, being in Basic it was

PROBLEM ATTIC

Pat McDonald goes on his first problem solving escapade. If your CPC's in danger, if you need help, then perhaps you can contact the AA team.

Reading material

I am writing to ask if you could recommend any books on computer programs. I enjoy writing programs and have run out of good ones.

Alan Healy, Lisburn

I assume that you are programming in BASIC, Alan. A good all round book is The Working Amstrad by David Lawrence and Simon Lane. If you want something more advanced, I suggest you turn to Powerful Programming for Amstrads: Supercharge your 464/664/6128 by William Johnson. Both are published by Sigma Press.

Computer deafness

I have a 6128. Until very recently I have never come within spitting distance of any tape software. Until, that is, your Christmas Cracker cover tape. So I linked my hi-fi with a DIN tape connector, and followed your instructions.



No Joy. I received the initial `Press PLAY then any key` message, and never saw a dicky bird after that. The tape always played through to the end. So please, what can I do?

RD Dudley, Welington

It seems to me as if your 6128 isn't connected properly to the tape deck. Take your lead to an electronics repair shop, and ask them to check it for you. The wiring diagram is on Ch7 P39 of your manual. If that is okay, it could either be your tape deck supplying a non-standard signal or – fairly unlikely – your 6128 is playing up. Try checking these against a working 6128 with tape system.

Printing around corners

I use my computer for compiling and storing my family tree. I use Masterfile 3, which is adequate for storing the data but that is it. I need a utility to change the printer output to print sideways at 90°on the page. Have you any suggestions.

J Nieurzyla, Tyne-Wear

No, I haven't. But are you sure that you are using Tasword to the full? The DMP 2000 can print 137 characters across the page in condensed mode. Tasword can manage 128 characters across the page. Perhaps you might consider buying a better word processor – like Protext from Arnor – then borrowing a wider printer, say an Epson FX100 to print out some copies of your family tree. Consult your Tasword manual to

Type-In changes

Window Saver – Feb87

1. To save the program as a binary file, the last parameter should be &FA, not &F9.
2. To calculate the number of columns, d=number of columns, not right of window - left of window.

Incidentally, the program crashes if the screen is scrolled after a mode command is issued.

Home Accountant – Dec87

The `WHILE WEND` loop in lines 590 to 600 allows c to be incremented once too often, resulting in a spurious line added to the end of the data. Change the `WHILE` command in line 580 to `c=Ø`, and move `c=c+1` to line 590, straight after `WHILE EOF=Ø`.

SmArt – Feb 88

Line 1500, change the final 1 to pe to draw circles with current pen.

B Bristow, Hastings

I'm sure plenty of readers will be grateful for your additions, Mr Bristow. £20 is on the way.

slow. This sets up an RSX to dump a screen of any mode to a printer.

```
10 ON ERROR GOTO 80
20 c=HIMEM
30 MEMORY &9FFF
40 a=a+1
50 READ a$:POKE &9FFF+a,VAL("&"+a$)
60 b=b+VAL("&"+a$)
70 GOTO 40
80 IF b<>12657 THEN PRINT "Data Error":MEMORY c:END
89 END
90 CALL &A000
100 END
110 DATA 01,0A,A0,21,0F,A0,CD,D1,BC
120 DATA C9,13,A0,C3,17,A0,FC,A6,0A
130 DATA A0,44,55,4D,D0,3A,C3,B7,FE
140 DATA 00,28,08,FE,01,28,08,FE,02
150 DATA 28,08,3E,14,18,0A,3E,28,18
160 DATA 06,3E,50,18,02,28,19,32,32
170 DATA A0,3E,19,32,33,A0,21,01,01
180 DATA E5,CD,75,BB,E1,CD,60,BB,FE
190 DATA 00,20,02,C6,20,CD,2E,BD,38
200 DATA FB,CD,2B,BD,24,3A,32,A0,BC
210 DATA 30,E3,CD,2E,BD,38,FB,3E,0D
220 DATA CD,2B,BD,CD,2E,BD,38,FB,3E
230 DATA 0A,CD,2B,BD,26,01,2C,3A,33
240 DATA A0,BD,30,C6,C9
```

Once the program is run, just enter |DUMP to get a screen copy.

Robert Sheridon, Peterborough

Standard deviation II

Correction to the hot tip in issue 29, p38 by Ian Montgomerie: the program calculates the variance, the sd squared, not the sd itself. This program does it correctly.

```
10 Input "Number of Samples ",n%: DIM r(N%)
20 sum = 0 : squ = 0: for i% = 1 to n%
30 INPUT r(i%): sum = sum + r(i%): squ = squ + r(i%)^2
40 NEXT i%
50 mean = sum / n%: sd = SQR(squ/n%-mean^2)
60 PRINT "Mean & sd =", mean, sd
70 END
```

Dieter Britz, Denmark

change the right margin to 128; consult Arnor on (0733) 239011 if you want to change your word processor.

Innovation inquiry

I am a Spanish student in my last year at Ravensbourne College as a product design student. The reason for this letter concerns my personal project which is a new scriber plotter. In principle this machine uses a dot matrix printhead rather than that of a traditional Rotring pen.

I read the article in the latest Amstrad Action, titled Printers on Parade, and I would like to investigate the possibility of incorparating the Ink-Jet in this new product. Therefore I would be grateful if you could help me in any way, especially regarding possible manufacturing contracts.

Javier Cunado, Chislehurst

First, protect yourself. Its always a good idea to be able to prove that an idea is your own. So have a talk with a solicitor, and maybe give him a witnessed, dated description of your design. Best of all, get a patent if you think you might need one. They are expensive.

I think your best bet is Acorn Computers, 20-26 Brunswick Place, London N1. Acorn once produced an ink-jet printer. So they could well be a good source of information.

Earthy Question

Every time I use my 464, the television goes haywire. I have heard about earthing the computer. How would I do this?

Shane Kiely, Mallow

There are two possibilites. One is that your machine is producing a lot of electrical noise on your mains supply. A mains filter will overcome this. Ask your local TV repair man if he can connect one to your Amstrad.

Alternatively, your computer – like every other piece of electrical gear – emits radio waves. Now it could be that these are interfering with your television. You can earth the computer against this; more in a moment.

To discover the cause of your problems, try plugging in the Amstrad and the telvision as far away from each other in the same building, so that they're on the same electrical supply. If there's little or no interference, it's the radio waves. If there's quite a bit to a lot of interference, it's the mains.

Earthing the computer against radio emission means covering it with a metal screen and connecting that to the earth supply. The easiest way to do this is to spray on a layer of conductive paint. Don't try this yourself. Get someone who knows what they're doing – again, try your local TV repair man.

Monitor Worries

My monitor has been troubling me for many a month now and I've finally turned to you for guidance. The problem concerns the colours. Certain colours, when they are put on the screen, leave annoying shadows, especially when you type in letters or draw straight lines. This is particularly noticeable with the cursor. The extreme left hand side goes a slightly different colour. For example, if the cursor is red, then the left is brown. Is it a serious fault? Can it be cured?

Could you recommend any books for the advaced machine cde programmer?

Ricardo Sueiras, Lymington

I strongly suspect that one of the colour tubes – Red, Green or Blue – is slightly mis-aligned. It is not a serious fault, but if you really want to get rid of it, consult with an Amstrad-endorsed repair company. Books: generally, these are few and far between. The way most programmers gain expertise is by studying commercial programs and by trying to write their own modules. Once you have a basic understanding of how the Z80 works, it is simply a matter of lots of exploration and practise.

ACTION TEST

For the second time in three months Digital Integration have scooped the *Mastergame* spot. This month *Advanced Tactical Fighter* has soared to the heights with some of the most addictive, demanding and tactical gameplay ever.

An old Mastergame, Druid, has been followed by a sequel, Enlightenment, which also rates very highly. It's packed with nasties, spells and frantic action.

There's the first in the Codemasters Plus range, Jet Bike Simulator, the conversion of Taito's arcade game Flying Shark, and a whole host of games from across the channel in France.



FLYING SHARK

Firebird, £8.95 cass, £14.95 disk, joystick or keys

The battle is drawing to a close and your side looks to be coming out the loser. High command have one last chance to turn the battle around and you're it, the greatest combat ace of all time. You must go on a lone mission against superior enemy forces – everyone is depending on you.

It's a vertically scrolling shoot-em-up with you in the pilot seat. Ignore the cassette artwork that shows a monoplane, because you're definitely chugging about in a biplane. On screen is the playing area in the centre with a status panel for each player on either side. The status panel shows your score, lives and smart bombs. There is a two player option but it's not simultaneous action.

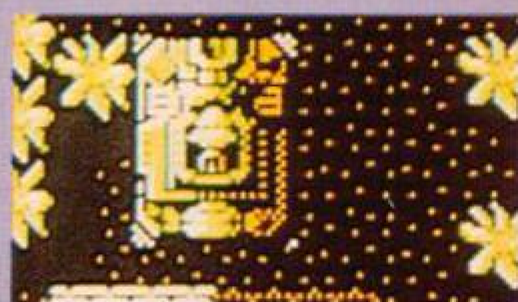
There are a variety of enemy air and ground based units that attack you, trying to bring your mission to a halt. Tanks, planes and anti-aircraft guns all hurl lead in your direction. Tanks take two hits to be destroyed, the first destroys the turret, stopping them firing, and the second finishes them off. The small planes can either be hit in the engine so that they explode or hit elsewhere and they then spiral downward to impact on the ground. The larger planes take more hits before they explode. Anti-aircraft guns also take several hits to destroy them. There are also the seaborne equivalents of the above enemies: battleships with gun turrets and gunboats.



Blast the tank to continue to the next level

By shooting the right enemy formation you can get get bonus squares. An "S" adds to your aircrafts firepower, the "B" gives you another smart bomb and the numbered squares give you bonus points. The extra firepower means that you fire multiple bullets rather than just a single one. Smart bombs destroy everything on screen, or cause damage to some of the more resilient obstacles. The extra firepower is crucial for quickly dispensing with the tougher enemies, so make sure you always get hold of it.

If you shoot an entire formation of aircraft when the 1up symbol is flashing then you gain an extra life. Extra lives are also awarded at 50,000 points, 150,000 points and



from then on every 150,000 points. Every time you lose a life you're sent back a short way and have to fight your way through again.

At various stages you will run into large obstacles that really take some hammering before they are destroyed. There are enormous tanks and, the battleships and, at the end of level one, a huge, multi-turreted aircraft carrier. At the end of each stage you land at an airstrip. Bonus points are awarded according to how many smart bombs you have left and then you're off again to blast more foes.

The graphics are disappointing, they've been ported across from another machine and use very little colour. There's plenty of detail on the backgrounds and weapons, but the lack of colour makes bullets hard to see. The scrolling is smooth and it's generally well animated. There's a good title tune, but the effects within the game are poor.

It's another in the stream of arcade conversions, but at least it's a fun one to play. A simultaneous two player option would have been much appreciated though. **GBH**

FIRST DAY TARGET SCORE
75,000 points

SECOND OPINION

Speed is the main problem because the scrolling crawls along at a very slow pace. This isn't particularly serious but it turns the action into a war of attrition rather than an adrenalin pumping blast. I like the detailed graphics but the poor choice of colours was avoidable. It's a good one for progress players trying to discover the dangers that lie in wait, and bound to put up a fight for many a long night. **BW**

GREEN SCREEN VIEW

Hard to differentiate between colours and objects particularly when trying to spot incoming bullets.

The Verdict

GRAPHICS 56%
- □ Smooth vertical scrolling.
- ■ Poor use of colour.

SONICS 49%
- □ Nice title tune.
- ■ Poor in-game effects.

GRAB FACTOR 77%
- □ Easy to get into the shoot-em-up aspects of the game.
- ■ Frustrating when you're killed by something that you can hardly see.

STAYING POWER 71%
- □ It'll take a lot of blasting before you reach your final objective.
- ■ Not much variation in gameplay.

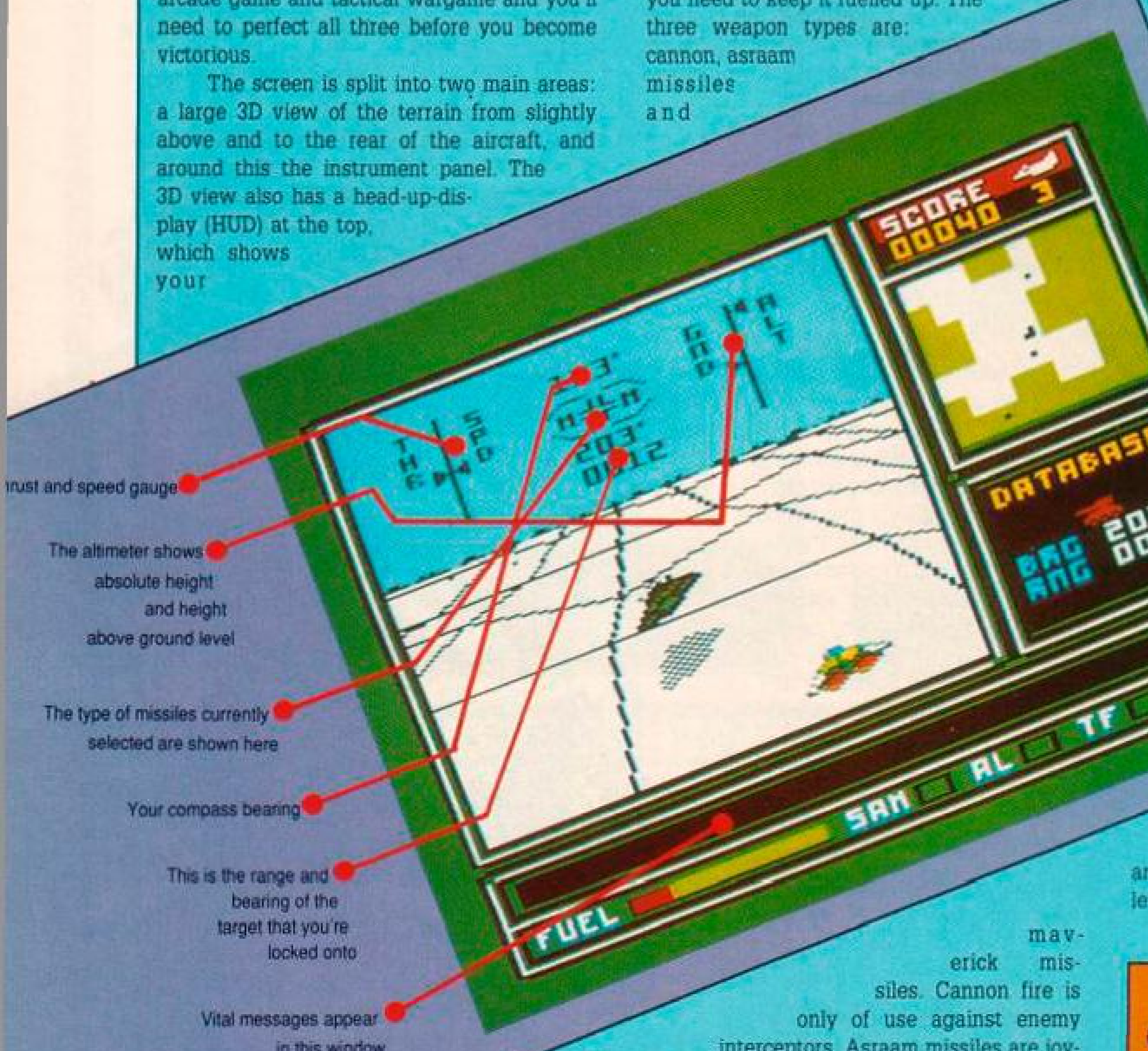
AA RATING 73%
- □ A demanding blast, but it does lack speed.

ADVANCED TACTICAL FIGHTER

Digital Integration, £8.95 cass, £13.95 disk, joystick with keys or keys

Only two months ago DI slid into the *Mastergame* slot with *Bobsleigh* and now they're flying high again with a combat simulation set in the near future. You're the pilot of the ATF and must seek and destroy enemy targets. It's a combination of flight simulator, arcade game and tactical wargame and you'll need to perfect all three before you become victorious.

The screen is split into two main areas: a large 3D view of the terrain from slightly above and to the rear of the aircraft, and around this the instrument panel. The 3D view also has a head-up-display (HUD) at the top, which shows your



thrust, speed, altitude, missile type, range and bearing of target and your bearing. Any other land, sea or air forces in view are shown as well as any targets.

The instrument panel has a short range scanner, computer, fuel gauge and message window. The short range scanner shows your position and the direction that you're flying, as well as any friendly or hostile military hardware in the vicinity. The fuel gauge warns of low fuel and any messages that crop up are displayed in the message window. Last, but by no means least, is the computer.

The computer has four operating modes: world map, database, weapon status and ATF status. The world map shows your position and whatever your computer is locked on to. The weapon and ATF status modes show how much weaponry you have left and the efficiency of the important ATF functions. Database mode is probably the most important because without this you can't find your friends and foes.

Your ATF can be armed with any combination of three types of weaponry and also you need to keep it fuelled up. The three weapon types are: cannon, asraam missiles and maverick missiles. Cannon fire is only of use against enemy interceptors. Asraam missiles are joystick guided missiles and maverick missiles hit the target that they're locked onto, providing you're roughly facing the target and within range. Sometimes the targets take a couple of missile hits before they're destroyed.

There are two armies out there: your's and your enemy's. Battle between the two continues in addition to your own personal effort, but you're the one that can change the fate of the war. This is done by undertaking missions deep into enemy territory, avoiding, or better still destroying, enemy interceptors and unleashing a missile on the enemy target. Watch out for sam missiles too because one hit from them brings you crashing to earth.

You have three ATF and therefore have three lives. The five types of targets that need to destroyed are: bases, tanks, ships, comms bases and factories. Bases are where aircraft are launched from, land and sea forces are blasting away at your allies, lack of communications means that the enemy forces are less well coordinated and industrial targets must be destroyed so that your enemy doesn't produce many new pieces of military hardware. You also should try your best to defend your allied targets for exactly the same reasons.

After every mission you receive a war report which shows gains and losses for both sides, intelligence reports gathered using communications and a bar chart to show the balance of power. If the red bars are generally longer than the green then things aren't going too well for you.

Control of the ATF is much simpler than you'd expect for a simulation. There's automatic landing when you're close enough to an allied airbase, but you do have to manually put down the undercarriage. Another nice feature is the terrain hugging option to keep you below enemy radar although if you travel too fast in this mode you are likely to fly straight into a hill and destroy the aircraft. A beeping sound warns of incoming sam missiles and you have to jam them quickly or be blasted from the skies.

The 3D scrolling graphics are magnificent and the perspective is excellent. Colour is used to good effect, with differ-

The Verdict

GRAPHICS 82%
- Smooth, fast and flicker free 3D scrolling.
- World map is a little tricky to interpret.

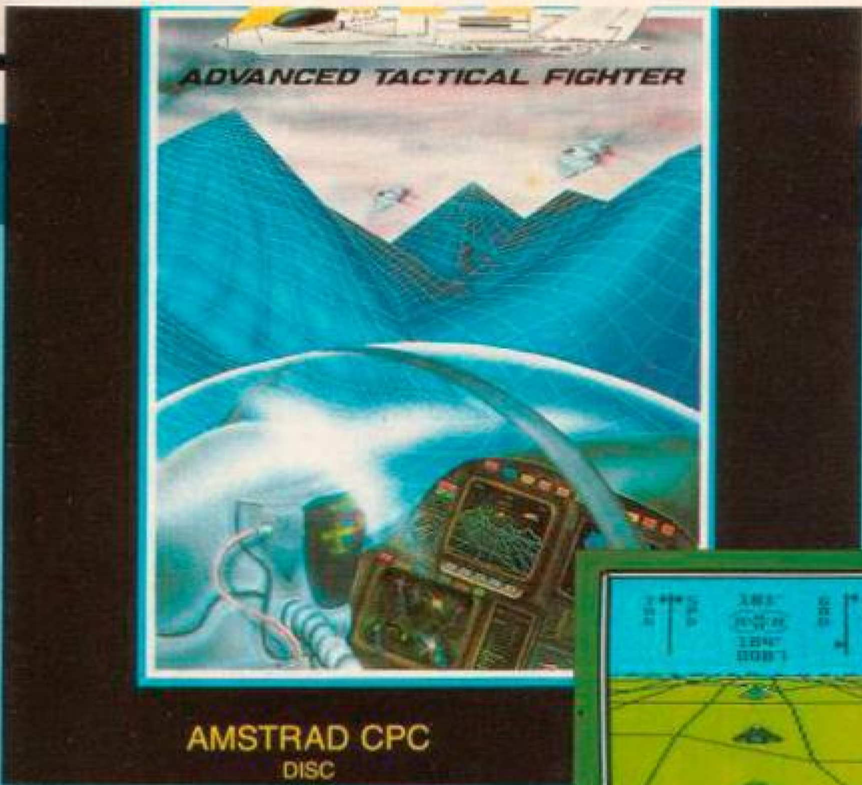
SONICS 63%
- Lovely tune on menu screens.
- Cracking in-game effects too.

GRAB FACTOR 93%
- Simple control of the plane makes it an easy game to get into.
- Elements of arcade action and strategy, combined to appeal to most players.

STAYING POWER 95%
- Eight skill levels to play on.
- Missions are always long and eventful.
- Winning the war is an immense challenge.

AA RATING 94%
- DI do it again with yet another piece of superb software.

MASTER GAME





● The power balance, enemy are the red bars and allies are green



ent types of terrain being coloured differently. A pleasing tune greets your ears when you're not flying around, and the effects are snappy.

I was pleasantly surprised by this because I expected a flight simulator like *Fighter Pilot*. Instead there's much more of a game element. Strategy and arcade style action have been combined to give a game that has more to offer than a standard shoot-em-up. Thought and tactical planning are essential for you to do well and there are eight skill levels, ranging from a rookie pilot up to an ATF ace. If DI keep on producing games like this then you've get a bright games playing future ahead of you. **GBH**

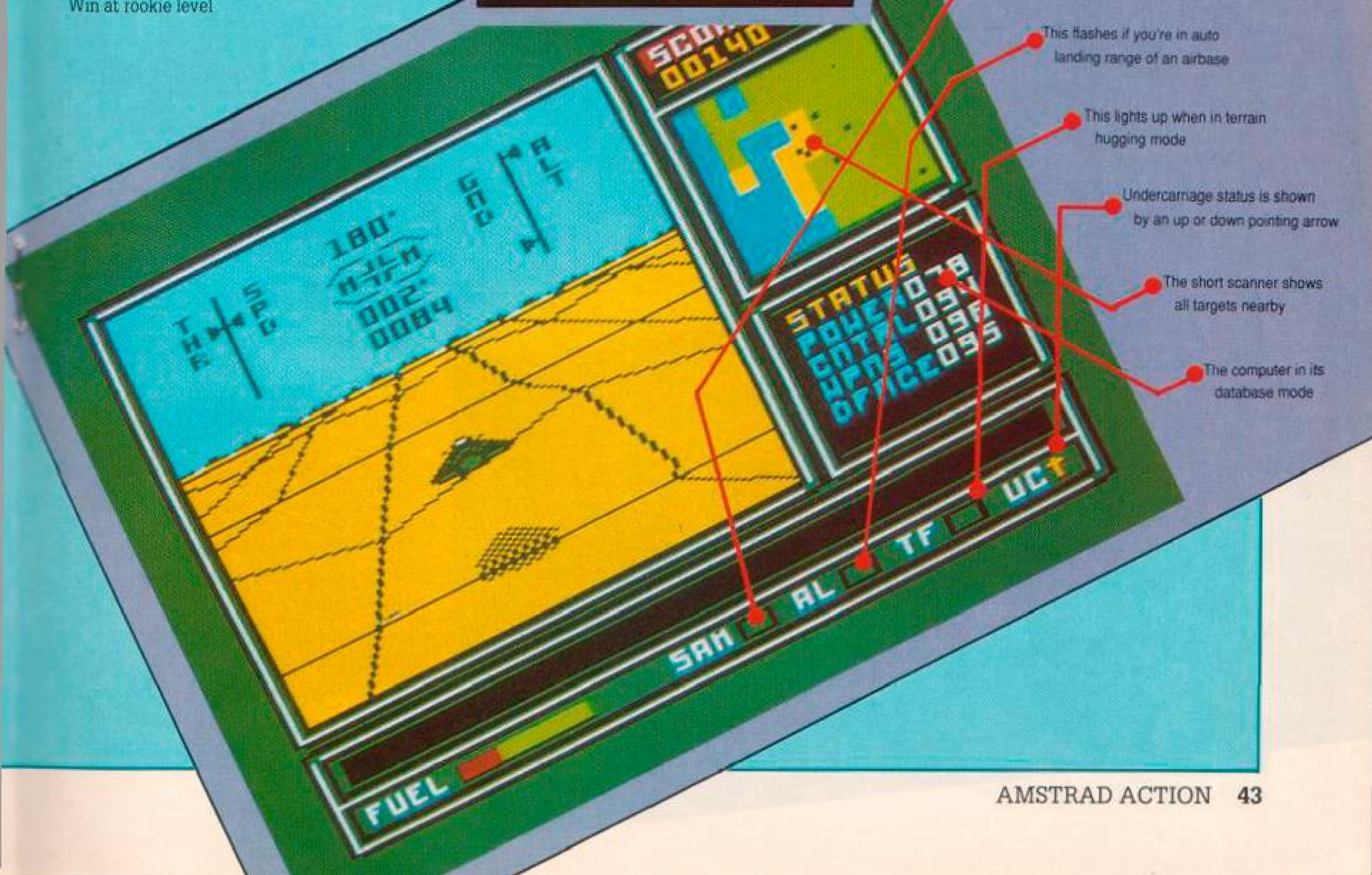
FIRST DAY TARGET SCORE
Win at rookie level

SECOND OPINION

There aren't many games which you just **have** *to have, but this is one of them. To start with you'll be wowed by the graphics, reminiscent of* Combat Lynx, *but with great speed. Then you'll be hooked by the amazing game-play as you fly a few missions. Finally you'll start picking up on the tactics needed to achieve victory in this awe inspiring masterpiece. This isn't a one-day-wonder, it's a game you can play solidly for weeks, if not months.* **BW**

GREEN SCREEN VIEW

The action's as easy to see in green as it is in colour with the exception of the world map. It's colour coded and as a result it's difficult to tell your enemies from your allies.



ENLIGHTENMENT – DRUID II

Firebird, £8.95 cass, £14.95 disk, joystick or keys

In the original *Druid*, (Mastergame in issue 15) Hasrinaxx defeated the evil Acamantor and four Demon Princes. Over a hundred years have passed since Acamantor's defeat and during that time Hasrinaxx has learnt much of druid magic. He'll need all his new power now because Acamantor has arisen again, and with him have come the Demon Princes once more.

The once happy population of the lands of Belorn have become zombies, the undead, and walk through the lands in a mindless state, at the whim of Acamantor. You have no choice but to seek out and kill Acamantor and his evil minions.

Players of the original will instantly recognise the style of game, with its four way scrolling playing area and hordes of nasties. The status panel has moved from the top of the screen down to the bottom and changed considerably in its contents. There's still the energy bar that is depleted when you bump into creatures. There's also the energy bar for your Golem and the ratings bar that increases as you solve more of the game.

The additions include a bolt indicator that shows how much charge you have to fire electrical bolts, the lower the charge the slower the rate of fire. There's also a message window and eight spell windows. The message window gives you information about your surrounding and on what's happening. The spell windows show which spells you're carrying in your spell book.

Druid had eight levels of dungeon style landscape to battle through. This time there are 15 levels in all, but you can move more freely around them. 10 of the levels make up the land of Belorn, ranging from the icy wastes and burning deserts to swamps and dark caverns. The other five levels are Acamantor's tower which is surrounded by a moat with no apparent means to cross it.

In *Druid* there were only a handful of spells, but in this there are 32 different ones. They range from mundane spells like door opening and lightning bolts to the potent Deathland and White Orb spells. Deathlight and its companion Deathlight are needed to kill a Demon Prince, while the White Orb is needed to kill Acamantor. Other spells restore your health neutralise poison, create magic walls, give invisibility, provide protection, repel nasties or give information.







- If you pick up these symbols you'll gain whatever spell is there
- Hasrinaxx the druid returns
- Your energy bar that shows your current health
- Golem his faithful servant has returned too
- The bolt indicator that warns when you're low on charge for lightning bolts
- Elementals also have an energy bar that's depleted when they bump into enemies
- A message window informs you of what's going on around you
- The spell windows and pointer are used to select and cast spells from your spellbook
- This bar represents your rating

The walls can seal of sections of the land and kill creatures in their path. The repellent spells are Turn Away and Crucifix which make your foes flee before you. One of the most useful is the Resurrection spell which when cast creates a grave. If you subsequently die then you will emerge from the grave, refreshed and ready to continue your struggle.

Your faithful servant Golem, who can be controlled by a second player, is back again. This time he's brought some friends from the other elemental plains of air, fire and water. Wisp, Phoenix and Kraken are their names and they are as dedicated a servant as Golem. Take care where you take your elementals because they don't survive long if taken into a place too alien to them. Phoenix doesn't last long in water and Kraken dies quickly in the desert.

To select which spell you wish to cast you simply press the appropriate number and hit space. It's usually a good idea to keep the spell pointer on a food or wine spell in case your energy gets too low, a quick press of a key and you're much healthier. You can also discard spells if you want to.

There are no tunes in the game and sound effects are not exciting either. The scrolling is smooth and the graphics are well animated. On some levels the elemental or druid is tough to pick out against a similarly coloured background.

Whenever a sequel comes out it usually fails to live up to the expectations, but this is an exception. The extra spells and bigger playing area make it a much more demanding game. There's also a detailed instruction manual with all the spell definitions and brief scenario. The option for a second player con trolling the elemental is useful, but the second player has little to do, he's just an assistant to the druid rather than being an independent player. If you liked *Druid* then you'll love this, if you didn't then give this a look anyway. **GBH**

SECOND OPINION

The sound effects, whether accidental or intentional, are amusing and very apt – the noises are akin to tiny insects scurrying along the ground. All other aspects of the game have been just as carefully seen to: detailed graphics, demanding gameplay and large gaming area. It's a cracker.
RpM

GREEN SCREEN VIEW

Sometimes the druid or his elemental disappear into the background, but no more so than on a colour screen.

The Verdict

GRAPHICS 78%
- □ Bright colour graphics.
- ■ Sometimes the background and the druid are a little to close in colour.

SONICS 38%
- ■ Average sound effects and no tunes.

GRAB FACTOR 84%
- □ Has all the addictive qualities of *Druid* and more.
- □ Two player option.

STAYING POWER 89%
- □ 15 levels of arcade action to go through.
- □ More thought needed because of the greater number of spells.

AA RATING 87%
- □ An admirable sequel.

FIRST DAY TARGET SCORE
Achieve the rating of Earth Lord.

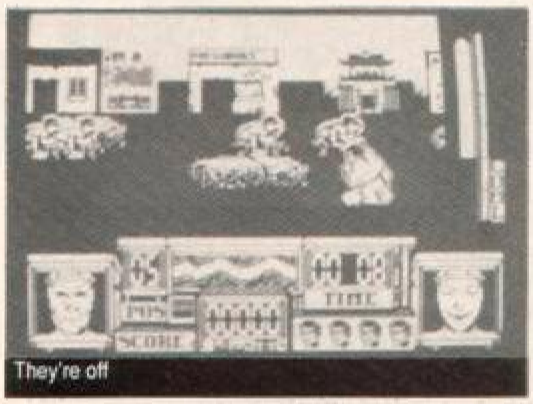
TOUR DE FORCE

Gremlin, £9.99 cass, £14.99 disk, joystick or keys

Get on your bike and pedal your way through five legs of a world wide race. You have 11 riders to race against and a time limit to beat. Can you win every leg and become the winner of the international grand prix cycling race?

The screen is made up of a horizontally scrolling landscape of the country that you're currently in, with a status panel around it. The status panel shows your position, time elapsed, temperature and a map of the route. If your rider gets too hot then he collapses of heat exhaustion and your race is over. You also lose if: you finish the race anywhere but in first place, run out of bikes or exceed the time limit.

To stop overheating you have to ride into bottles or glasses of liquid that appear along the course. Crashing your bike into one of the many different obstacles that you'll find on the route makes you lose one of your five lives.


They're off

If you manage to win a race then it's on to the next country for the next leg of the race. What seems strange is that instead of having to go back to the starting course in Japan you're just sent to the start of the race that you've just failed to complete. On later courses your opponents resort to kicking you off your bike, but you can retaliate in the same manner.

Slow and jerky scrolling feature heavily and the graphics are very badly animated too. If you're wondering which bike is yours it's simple, it's the white bike in amongst the other 11 white bikes. Before each race a short snatch of the countries national anthem is played. There are no sound effects in the game itself.

This has loads of features that make for a bad game. Horrible graphics, virtually no sound and boring gameplay. Gremlin have let themselves down with this one, let's hope they can get back to games of the like of *Deflektor*.
GBH

SECOND OPINION

£10 for this is ridiculous. It wouldn't even cut it as a budget title. The gameplay is hopelessly simple. The graphics are dreadful, particularly in the colour department. The in-game sound is non-existent. Avoid it. **BW**

GREEN SCREEN VIEW

No more difficult identifying your bike in green than in colour, there are still no distinguishing marks.

FIRST DAY TARGET SCORE
5,000 points.

The Verdict

GRAPHICS 37%
- ■ Terrible horizontal scrolling.
- ■ Poor use of colour.

SONICS 36%
- □ Nice tunes at the start of the race.
- ■ No sound in the game itself.

GRAB FACTOR 23%
- □ Fun kicking your opponents off their bikes.
- ■ Not being able to distinguish your bike is stupid.

STAYING POWER 18%
- ■ You'll complete it in under an hour.
- ■ Courses are much the same.

AA RATING 20%
- ■ A bad conversion of a poor original.

FIREZONE

PSS, £12.99 cass, £17.99 disk, keys only

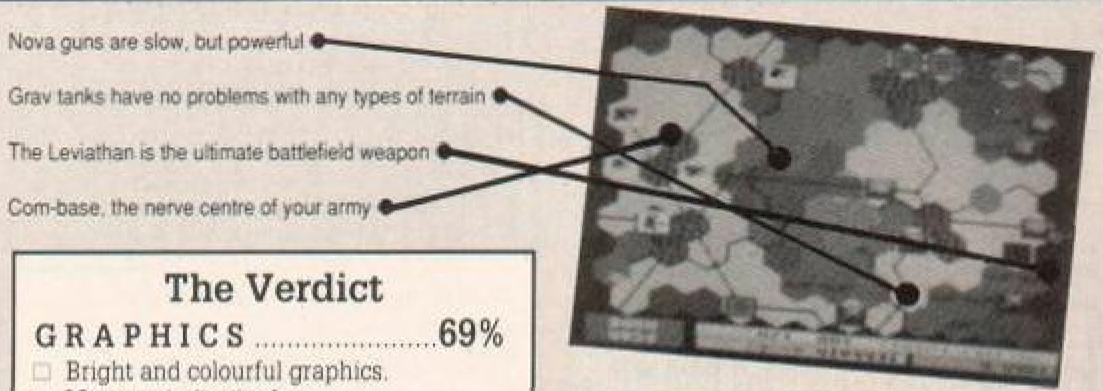
From the authors of the excellent games *Battlefield Germany* and *Sorceror Lord*, comes a jaunt into the future of warfare. The setting for the campaign is the 21st century when battles take place in minutes rather than months.

Combat is between two forces: the European League and the Pacific Combine. You can be either side and fight the computer, or you can use the two player option. There's also a demo to show the shape of things to come.

You have a choice of three preset scenarios to play: First Blood, Surprise Attack and the Final Conflict. Buyers of the disk version of the game get another six scenarios to play through. Both tape and disk also have a game designer allowing you to construct maps and battles. Each scenario is split into turns which have four phases: League movement, combat, Combine movement and combat again.

Your armies are made up of seven types of unit: infantry, nova guns, striders, grav tanks, heavy tanks, leviathans and com-base. Infantry have always been an important part of battles and these are capable of destroying anything with their armour piercing weaponry. The nova gun is heavy piece of artillery that moves slowly, but when it hits it's a devastating hit. Striders are bipedal attack machines which carry both short and long range weaponry. Terrain is no problem for the grav tanks because they travel just above ground level at high speed. Heavy tanks are slow, but their powerful weapons make them difficult to destroy.

If you think they're tough, try a leviathan. They carry the firepower of a battalion of heavy tanks. Finally there's the com-base which is the brains of your army.



● Futuristic warfare on a small scale

The Verdict

GRAPHICS **69%**
- □ Bright and colourful graphics.
- ■ Map reprinting is slow.

SONICS **11%**
- ■ Typically bad effects for a wargame.

GRAB FACTOR **69%**
- □ Introductory scenario to get you going.
- ■ Lack of overall map is a disappointment.

STAYING POWER **67%**
- □ 3 (or 9 on disk) scenarios to win at and also a designer program.
- ■ Game is over too quickly for you to develop a strategy.

AA RATING **64%**
- ■ Too expensive by far.

The game designer has its limitations in that it only allows you to design other 21st century scenarios. It would have been better if you could design scenarios for every era, as this would have given it much more flexibility. I doubt if it would have been that much more difficult to do. Sound is very simple with bursts of laser fire and crude explosions. The graphics are simple, but colourful and easy to identify.

It's good fun to play, but the playing area is too small. An option to show the whole of the map in a smaller scale like that found in *Sorcerer Lord* would have been very useful. There are many scenarios to play through, but they are over too quickly. The short playing time means that you have little time to develop a strategy before the game ends. **GBH**

GREEN SCREEN VIEW

Everything is easy to identify in green.

MEGA BUCKS

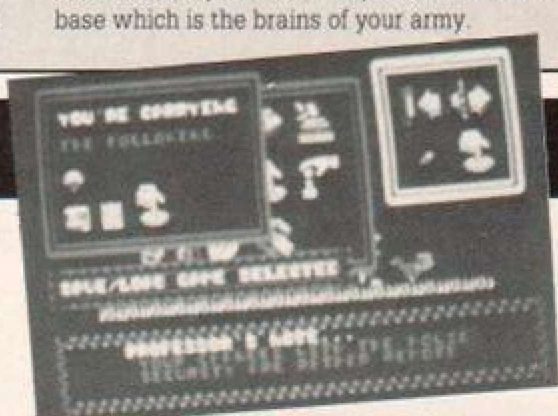
Firebird, £1.99 cass, joystick or keys

Your extremely rich and eccentric uncle, Maxibillion III, has passed away and left his billion dollar fortune to you. Unfortunately your uncle was mean and shrewd and before he died he hid a video tape that holds the key to the inheritance.

The estate is made up of many flick screen rooms where you find objects to help in unravelling the mystery. In the lower part of the screen is a message window where useful bits of information appear. If you press on the fire button then a menu appears with an assortment of icons: pick up, drop, use, cancel, off and abort. Take care with the off icon because it resets the computer and you'll have to re-load the game. The cancel icon exits the menu and the abort one restarts the game. The others are concerned with object interaction.

Graphically it's nothing special with poor animation and little colour. Sound is limited to spot effects and there are no tunes.

Almost as soon as you start to play you'll begin to notice similarities between this and *Spellbound* and the other Magic Knight games. The main difference is the use of icons rather than text to select options. Other than that the gameplay is almost identical. If you liked the Magic Knight games then you'll probably enjoy this. **GBH**



● Watch out for the biting plant

SECOND OPINION

There's no doubt it's a Magic Knight rip-off, but seeing as that was such an excellent series of games, they couldn't have picked anything better to copy. The problems don't seem too difficult and there's quite a bit to explore. It may not be Magic Knight but it will still provide many hours of puzzling. **BW**

GREEN SCREEN VIEW

Everything's easy to see in green.

FIRST DAY TARGET SCORE

Complete 25%

The Verdict

GRAPHICS **47%**
- □ Clear and easy to identify icons.
- ■ Poor use of colour.

SONICS **26%**
- ■ Just a series of beeps.

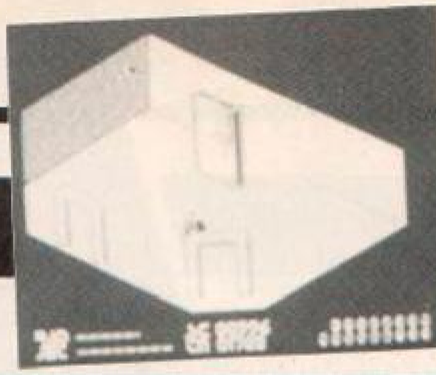
GRAB FACTOR **57%**
- □ Some early problems are easy to solve allowing access to more of the game.
- ■ You move around very slowly and this makes the game boring.

STAYING POWER **67%**
- □ Fans of the Magic Knight games will find plenty to keep them occupied.
- ■ Icon system is fiddly.

AA RATING **61%**
- □ You can do a lot worse for under £2.

CHAIN REACTION

Durell, £6.99 cass, £12.99 disk, joystick or keys



Push the rod down into the vault

The Anti-Nuclear Party have invaded a nuclear power station, re-programmed the robotic equipment to empty the containment vault and attack the human staff. 18 radioactive canisters of fuel rods have been distributed throughout the seven levels of the building. You have 30 minutes in which to return all of the canisters to the vault.

On screen there are two areas: the playing area and the panel at the bottom of the screen. The bottom of the screen has a radiation gauge, fuel gauge, score, timer and diagram of the 18 fuel rods. The diagram of fuel rods shows the floor that each of the rods is on.

You're equipped with a jetpack, machine gun and, most importantly, a radiation suit. The jetpack lets you fly over obstacles in your path, but it does have limited fuel. The fuel does regenerate given time. Armour piercing ammunition is loaded in your machine gun and it's needed to blow away the robots. Your radiation suit gradually gets a build up of radiation from two sources: contact with fuel rods and robots shooting at you. The radiation suit can be repaired if you use a shower.

The seven floors of the building are made up of interconnecting rooms. Some rooms have lifts that take you up or down a floor. Many rooms have holes in the floors, these also take you down. However, sometimes they're lined up with holes in floors below and you end up dropping much further than you intended.

Colour is not used well with most screens monochromatic. The sprites themselves are detailed, but they too lack colour. There are no tunes and the effects are sub-standard.

There's really not that much to do. You wander around collecting fuel rods, decontaminating yourself and that's about it. The longest that a single game will take to complete is 30 minutes, because that's how much time you've got. When you do complete it what next? **GBH**

SECOND OPINION

Spot the quickie conversion, causing the whole thing to look very drab. The game itself isn't much better. It's well and truly stuck in the old concept of explore, collect and return. Even with robots to zap, showers to take and some flying around, it's an unimpressive experience. Oh, and it has one of my pet hates – no directional control option. You have to swivel, move, swivel, move, swivel, etc,etc,etc... **BW**

GREEN SCREEN VIEW

Since they're virtually in monochrome anyway it doesn't make any difference.

FIRST DAY TARGET SCORE

2,000 points

The Verdict

GRAPHICS **54%**

- □ Detailed sprites and smooth animation.
- ■ Pity about the lack of colour.

SONICS **29%**

- ■ No tunes and average effects.

GRAB FACTOR **58%**

- □ The instruction booklet gives you some helpful "how to get started" tips.
- ■ Having to leave a room and re-enter to pick up a dropped rod is annoying.

STAYING POWER **62%**

- □ A game where mapping is going to be useful.
- ■ Once you've found where all 18 rods are it's an easy game to complete.

AA RATING **59%**

- ■ A bit more to do would have made for a more lasting and enjoyable game.

SPACE ACE

Infogrames, £9.95 cass, £14.95 disk, joystick or keys

This is the first in a series of the Time Troubleshooter series, in which you're introduced to the time traveller Lee Enfield. He'll be in all of the games, which are set in various periods of the past, present and future. This one's set in the future.

You may think there's a distinct similarity between this and *Prohibition*, and you wouldn't be wrong. The setting is the surface of another planet which has buildings and craters for monsters, snipers and enemy soldiers to hide behind. On the screen is the sight of your laser rifle with four little arrows in it. A sensor in your gun lights up the appropriate arrow to indicate in which direction you should move the sight to find your target.

The targets can fire back at you, but fortunately your gun has another sensor that detects when they're going to fire. A beeping sound increases in pitch when they're in a position to fire. Eventually they will fire and you'll lose a life. You do have a shield, but you only have enough energy to power it for a certain time. Once you've found your target you fire until they die. There's a kick to your laser rifle, so the sight jumps about a bit.

The game play is identical to *Prohibition* with a couple of minor differences. The first difference is that rather than an on-screen countdown warning of how close your enemy is to firing there's the beeping sound. The countdown in *Prohibition* was much easier to interpret. The other main difference is that in *Prohibition* you had a long street in which the gangsters appeared, whereas here you get multiple levels. To complete a level you first have to kill a set number of enemies and then a globe that throws your sights off target.

Sound is simple and boring, there's only a tune on the title screen. The graphics are very pretty, but sometimes the aliens are virtually impossible to see, since they're the same colour as the background.

The message has to be that if you've got *Prohibition* you won't want this, because it's effectively the same game. If you're new to the concept it will provide some fun, but quickly palls because it lacks depth. **GBH**

The Verdict

GRAPHICS **68%**

- □ Detailed background graphics.
- ■ Not much colour and aliens are sometimes too hard to spot.

SONICS **58%**

- □ The music is of a high standard.
- ■ Spot effects in the game are simple and boring.

GRAB FACTOR **59%**

- □ Easy to get into, move around and shoot.
- ■ It's *Prohibition* set in space.

STAYING POWER **44%**

- ■ Very little variation in style of play.
- ■ No thought needed at all.

AA RATING **46%**

- ■ Zilch points for originality.

FIRST DAY TARGET SCORE

1,000 points

GREEN SCREEN VIEW

No difficulty for greenies.

Shoot the monster before he gets you





• The observation round

KRYPTON FACTOR

TV Games/Domark, £7.95 cass, keys only

This is another in Domark's TV Games series. It's based on the gruelling six round quiz to test physical and mental skills to the full.

One to four people can play. The single player game is pointless, because you'll automatically win as there are no opponents. Before play begins you also select which digitised picture represents you. There are four male and four female pictures.

The Verdict

GRAPHICS 65%
- □ Nice digitised pictures.
- □ Generally detailed graphics in the rest of the game.

SONICS 47%
- □ Pleasant title tune.

GRAB FACTOR 63%
- □ Fun as a two to four player game.
- ■ Useless as a one player game.

STAYING POWER 58%
- □ Manual dexterity rounds will take some practice before you do them well.
- ■ It won't take long before you know all the answers.

AA RATING 59%
- ■ Better than *Blockbusters*, but still not great.

The six events are mental agility, observation response, physical ability intelligence and genera knowledge. In the mental agility round a series of numbers are flashed up onto the screen. You then have to sort the numbers into ascending numerical order and type them back in again. Next is the observation round, in which a picture and an associated story are displayed. Two versions are shown and you have to spot the text and picture differences.

SECOND OPINION

Not my sort of game at all. You spend most of the time sitting around waiting for the computer to load. When you do get to do something it's terribly simple and unlikely to get the adrenalin going. It has got some merit as a multi-player game, but even then the interminable pauses are guaranteed to dampen the competitive edge. **BW**

GREEN SCREEN VIEW

The second part of the response round is trickier because it's based on colour differences.

Round three is the response round where you have to propel an "ergobuggy" along a short course. You have to alternately press keys, but they must be pressed at different rates to keep the buggy moving. In the second part of the round the screen is divided into four sections and you have to say which corner has most TV's of the same colour.

Physical ability is similar to the ergobuggy round, only this time the four keys are treated individually. You have to race along an assault course controlling your strength, stamina, arms and legs. Next is the intelligence round. Here you have to re-assemble a logo within a time limit. Finally there's the general knowledge round where each player tries to answer the questions first.

There are some nice digitised pictures and the rest of the graphics are well done. Colour is used effectively too. The tunes are average in quality and sound effects are of a similar standard.

This is better than Domark's last TV Game, *Blockbusters*, but they do still have a way to go. You could probably pass a few nights playing this with friends, but as a solo game it's useless. **GBH**

WARHAWK

Firebird, £1.99 cass, joystick or keys

You are the pilot of Warhawk, a sophisticated spaceship out on a mission of destruction. Enemy bases are littered throughout an asteroid belt and your task is to obliterate them.

It's a vertically scrolling shoot-em-up that looks and plays a lot like an earlier Firebird release, *Mission Genocide*. Almost all of the screen scrolls down towards you and below the main play area is your shield status and score. Your ship can move up and down the screen as well as to the left and right.

SECOND OPINION

Jolly enough for a budget title – undemanding blasting. It doesn't have much variety and it's difficult to stay alive for long. Everybody probably has one like this in their game collection – the trouble is most of them were bought two years ago. **BW**

GREEN SCREEN VIEW

Sometimes aliens merge with the background.

The game is split into levels, each level being a different asteroid. The asteroids scroll beneath your ship and aliens in various formations swoop down towards you. Meteor storms appear at times and these can't be shot, so you have to dodge out of their way. Collision with meteors and aliens damages your shields. If you run out of shield energy then the game ends.

The Verdict

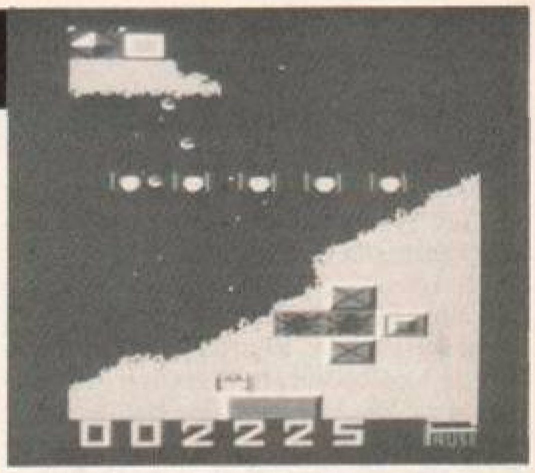
GRAPHICS 72%
- □ Smooth vertical scrolling.
- ■ Jerky movement of the sprites.

SONICS 68%
- □ Great tune, plays continuously.

GRAB FACTOR 58%
- □ Pick up a joystick and fire away.
- ■ Once you've seen one scrolling shoot-em-up you've seen-em-all.

STAYING POWER 42%
- □ Hordes of aliens to blast.
- ■ Not much variation from wave to wave.

AA RATING 49%
- ■ Games like this are unoriginal and outdated, even if they are cheap.



• A horde of meteors move towards you

On the title screen there's a nice little tune and during play there's a continuous one. The in-game effects are loud and zappy, just what you need for a shoot-em-up. The vertical scrolling is smooth, but the movement of the aliens and your ship is jerky.

Very little thought needed as you blast your way through wave upon wave of aliens. There's little variety in alien formations, but you do get plenty to blast away at. One other thing, don't believe the cassette inlay as to which key is pause, Esc aborts the game. **GBH**

FIRST DAY TARGET SCORE
50,000 points.

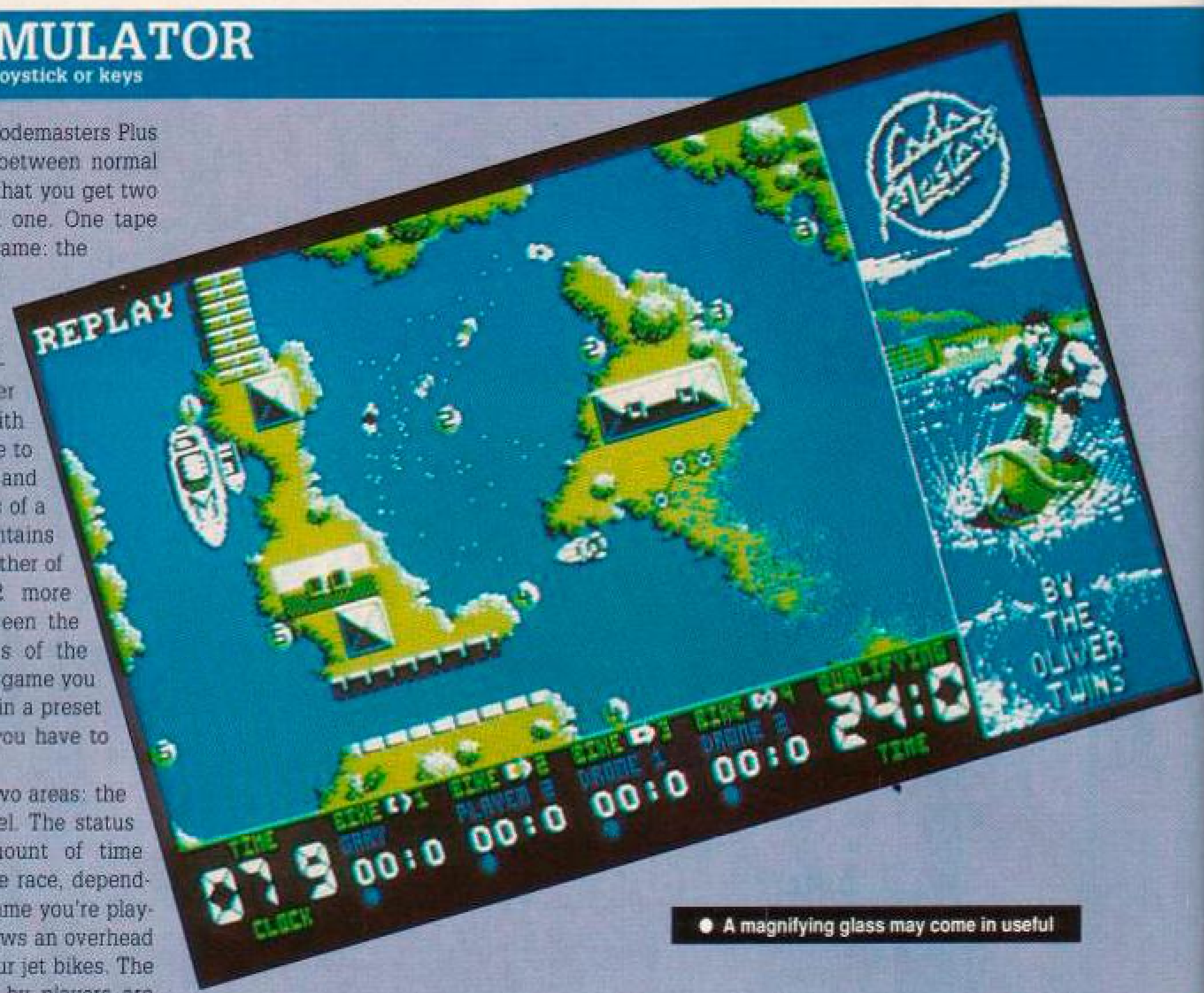
JET BIKE SIMULATOR

Codemasters Plus, £4.99 cass, joystick or keys

This is the first game in the Codemasters Plus range. The major difference between normal games and the Plus range is that you get two tapes in the box rather than one. One tape contains two versions of the game: the standard version and the expert version.

This latest "simulator" is similar to *Grand Prix Simulator* but puts you on the water instead. In competition with three other jet bikes, you have to go through a series of gates and complete a set number of laps of a course. The second tape contains data that can be loaded into either of the versions to provide 12 more courses. The difference between the standard and expert versions of the game are that in the standard game you have to finish the course within a preset time limit and in the expert you have to avoid finishing last.

The screen is split into two areas: the play area and the status panel. The status panel either shows the amount of time elapsed or your position in the race, depending on which version of the game you're playing. The rest of the screen shows an overhead view of the course with the four jet bikes. The bikes that are not controlled by players are



● A magnifying glass may come in useful

TERRAMEX

Grand Slam, £8.95 cass, £14.95 disk, joystick or keys



Out in space there's an asteroid which just happens to be on a collision course with earth. Not to worry though because there is one man that can stop the demise of the whole human race – Dr Eyestrain.

Eyestrain is a brilliant scientist who predicted the asteroids path some time ago. No one believed him and there was a general feeling that his eccentricity had turned to senility. Eyestrain disappeared and until now nobody was the slightest bit interested. Five fearless adventurers volunteer to find the missing Dr. You choose which of the five you want to be on this dangerous mission. The five heroes are Big John Caine, Fortisque-Smithe, Herr Krusch, Wu Pong and Henri Beaucoup. Each has his own strengths and weaknesses, but they're all capable of solving the mystery of Eyestrain's whereabouts.

On screen there's a status panel and the playing area. The main playing area is of the flick screen variety with hazards galore to kill you off. The status panel shows you how many lives you've got, your score, the object that you're holding and a line of bearers that carry the rest of your objects. The line of bearers can be scrolled so that you can swap the object



● Flying along on a vacuum cleaner

that you're holding with one that a bearer has. You won't run out of space to carry objects because your bearers can carry 27 objects and you can carry another yourself.

Your first task is to find Eyestrain and, once he's convinced that the human race is worth saving, you'll have to collect the objects that make up the Positronic Asteroid Deflector. Finally you need to operate



SECOND OPINION

Not a game for the easily frustrated, but certainly one for those who like a highly demanding driving game. All it is really is GPS with a lot more skidding on the turns. It's nice to have more opponents, but continually bumping into the other human opponent in a two player game is extremely annoying. It's probably worth the extra money, even though the expert version is just a change of qualifying criteria, rather than a change in game difficulty. A good start to the Plus range, it will be interesting to see how it continues. **BW**

GREEN SCREEN VIEW

No playing problems.

computer operated drones.

There's a simultaneous two player option so that you can compete against another player. To complete a circuit of the course you must do the required number of laps, passing through the five numbered gates. If you don't go through all the gates then you're disqualified. At the end of the race you're awarded points depending on your position and, if you qualified, you go on to the next course. After every race is completed you can opt for an action replay of it. When you've completed all six courses the computer prompts you to load one of the other data tapes. You can also load the other courses in at any time from the options screen.

Not only do you have to compete against other racers,but there are also static hazards that get in your way. There are weeds, pontoon bridges, jumps and the edges of the course. Weeds slow your bike down because of their clinging effects and make it more difficult to accelerate. Sometimes there are pairs of jumps that you have to leap across and building up enough speed is not easy. If you avoid the jumps and go around them then you're slowed down considerably. The other hazards just bring you to an abrupt halt and you bounce off.

As with previous Oliver Twins games there is some digitised speech that welcomes you to the game. Sound in the game is limited and quite poor. The jet bikes are small and indistinct, making them difficult to pick out when they're all in a pack. The course graphics lack colour but they are detailed and varied between the three sets of courses.

The game as a whole is enjoyable, if frustrating at times, and the extra courses give it a longer lease of life. There are some irritating features, the way that you can collide with another players jet bike, but not with the drones, for example. Collision detection is poor too. A must for fans of *Grand Prix Simulator*, but they can't keep doing simulators for long, can they? **GBH**

FIRST DAY TARGET SCORE

Complete the standard lake courses.

The Verdict

GRAPHICS **67%**
- Pretty backdrops that lack colour.
- Tiny little jet bikes don't make it any easier to play.

SONICS **34%**
- Digitised speech.
- Poor in-game effects.

GRAB FACTOR **74%**
- Bikes respond well to controls.
- Poor collision detection is irritating.

STAYING POWER **66%**
- 18 courses to do at two skill levels.
- Even with 18 courses it quickly gets repetitive.

AA RATING **70%**
- A good start to the Plus range.



the machinery so that the asteroid misses and you can then have a well earned rest. If you fail in your mission then you see very poorly animated sequence of an asteroid hitting earth.

You begin in the middle of the desert standing next to a vacuum cleaner, it's been slightly altered by Eyestrain so that you can sit on it and fly around the sky like a witch doing the spring cleaning. Many other objects have been doctored by the wacky scientist and have different properties than you'd expect. There are plenty of objects to find and lots of places to use them. You'll find out what and where to do things by a process of trial and error, or sometimes by pressing the hint key. This sometimes gives you a helpful clue as to what objects you need to solve a particular problem.

Games like this should always check that you can't get into a situation where you lose all your lives, and unfortunately this one doesn't. On one occasion I jumped into a location and hit a pterodactyl. causing me to lose a life. The game then persisted in making me hit that same pterodactyl until I had run out of lives.



Sound is average, but an atmospheric title tune plays before you start the action. The graphics are colourful and the animation competent. There are some humorous touches to the graphics – the way that your adventurer shakes his head when you try to make him leap to his death. Another good example is with the cannon where you climb down the barrel and using gunpowder propel yourself through the air. There are two barrels of gunpowder, a large one and a smaller one, if you use the large one then you lose a life when the cannon's fired because you over shoot and end up head first in a rock face.

This style of game has been around for a long time and this is a nice variant on the theme. It won't win any prizes for originality but it should provide many hours exploring and puzzling. **GBH**

SECOND OPINION

There's not alot to say about this one, except that it's competent and average. It lacks anything that would really grab your interest and get you hooked, but then again there are plenty of problems to deal with and places to explore. The only thing I'd like to know is what those weird pink things that pop out of rocks are supposed to be. **BW**

GREEN SCREEN VIEW

Just as easy to see everything in green as it is in colour.

The Verdict

GRAPHICS **68%**
- Bright and colourful backgrounds.
- Humourous animation in places.

SONICS **67%**
- Atmospheric title tune.

GRAB FACTOR **64%**
- Some easy initial puzzles
- Irritating features like the continual death loops that can occur.

STAYING POWER **69%**
- Lots of problems to solve and locations to explore.
- Won't actually take that long to solve.

AA RATING **66%**
- A fun game that'll keep you busy.

FIRST DAY TARGET SCORE

800 points

MACH 3

Loriciels, £9.99 cass, £14.99 disk, joystick or keys

If you want to see some smutty cassette artwork then your chance is here again. It's not quite as revealing as past examples – and it's still got nothing to do with the game. Sfax is a mutant sorcerer who has cast an evil spell over your companion Gwendoline. You have only one chance of removing the spell, and that is to find Sfax and destroy him.

Before play begins an excellent tune is played, unfortunately you can't exit this and have to wait for it to finish in its own time. The screen shows a 3D filled graphics representation of the planet and a rear view of your spacecraft. There are three main sorts of hazard to avoid in your quest: spacecraft, mines and meteor storms. Sfax's spacecraft come in a variety of formations as they swoop towards you firing bolts of energy. Mines appear on the landscape too and if you hit them or fly too low over them you will get caught in the blast. Meteors move diagonally across the screen towards your ship, destroying it if they hit.



Sfax's face takes several hits before it's destroyed

There are gateways that look like goalposts that you can fly under to score bonus points. Everything that can kill you, can be shot for points.

Eventually you will reach a gate guarded by a string of mines. Once you go through the gate a representation of Sfax's face appears and must be destroyed before you can continue.

The in-game effects are adequate. There's not much colour in the graphics, which is a pity, but they make up for it in speed. Some short cuts have been taken to give the speed, but the effect is great.

Control is very sensitive and it takes some practice before you're flying round with any skill. Once mastered you'll realise that the sensitivity is necessary. Not much thought needed in this, but if you want a nice fast shoot-em-up then you can do much worse than this.

GBH

GREEN SCREEN VIEW

No problems zapping in green.

FIRST DAY TARGET SCORE
100,000 points

The Verdict

GRAPHICS 71%
- □ Nice crash routine for your ship.
- ■ Not much colour used.

SONICS 67%
- □ Great title tune.

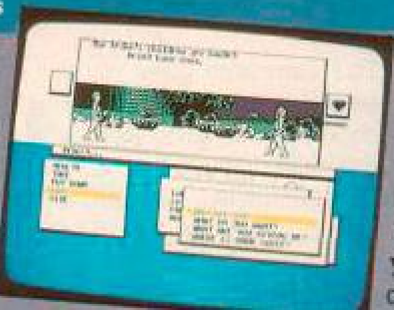
GRAB FACTOR 70%
- □ Easy to get into the zapping of it.
- ■ Not much originality.

STAYING POWER 58%
- □ The different levels present quite a challenge.
- ■ Not much thought needed, and it does get repetitive.

AA RATING 66%
- □ A fun shoot-em-up that will keep you killing those aliens.

SAPIENS

Loriciels, £9.99 cass, £14.99 disk, joystick or keys



100,000 years ago the sun rose on a new day. The day that you, a member of the Agile feet tribe, set forth from your home to save the tribe from extinction. To save the tribe you must hunt for food, fight, and possibly even tame, wild animals and seek for tribes to ally with you in the struggle for survival.

The playing area is split into two main areas: your view of the surrounding landscape and an action menu. In between the two there's a message window where speech and status messages appear. In the action menu is a list of commands that you select from keyboard or joystick.

GREEN SCREEN VIEW

It plays just as well in green as it does in colour.

Commands available are: sapiens, health, take, put down, say, give, look, consume, tend with, sleep and make. The sapiens command allows you to select the sex and name of your character and also to save or load the game. Take and put down allow you to use objects. A sub-menu appears to let you select the object. You can also interact with other characters via the say command.

The look command is split into four options: landscape, lateral view, panorama and map. The map option gives you a pterodactyl's eye view of the landscape. The consume, tend with and rest commands let you eat and drink, heal yourself and rest respectively. Finally there's the make command that allows you to make a spear or stone axe from flints.

As well as humans wandering around earth you'll also bump into animals. Wolves are also short of food and will attack you when ever they can. Bears too have begun to hunt man. There's also simpler food to kill like rabbits and chickens.

The graphics are not excessive on colour, but there is good detail on everything. The animation is good in the walking sequences, but the fight sequences are jerky and not as effective. There's a nice tune that plays on the menu screens. Sound effects are infrequent, but classy when they do occur.

This is a very difficult game to describe because it's not so much a game that you complete, more one you continue surviving. A lot of time is spent in trying to find water and lot food to keep yourself alive and for this reason you could find it boring, but it's worth a look to make the decision for yourself.

GBH

The Verdict

GRAPHICS 67%
- □ Detailed scenery and characters.
- ■ Not much colour used.

SONICS 72%
- □ Atmospheric continuous tune.

GRAB FACTOR 68%
- □ After a while you begin to understand what's going on.
- ■ Initial confusion may put you off.

STAYING POWER 77%
- □ Not a game you complete, more one that continues for as long as you want to.
- ■ A lot of time is spent wandering around doing nothing.

AA RATING 74%
- □ An original idea for a change and it's executed well.

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BOB WINNER

Loriciels, £9.99 cass, £14.99 disk, joystick or keys

Digitised pictures abound in this game of globetrotting and combat. A lost civilisation needs to be found and you're the one to do it. For some strange reason the great powers don't want you to find it and so they've sent their best fighters to stop you.

The screen is made up of the playing area and a status panel at the bottom that lists the objects that you're carrying and the number of lives remaining. The playing area has two main parts: one where you and your opponents appear, and the other is the digitised picture of the location.

There are three major cities that you travel through en route to your destination: London, Paris and New York. In London you have to box with your opponents, in Paris you do French boxing and in New York you shoot it out with a cowboy. Before you can fight in the appropriate manner you need the piece of equipment associated with it, boxing gloves, a boot and a pistol respectively. These are found in your travels and need to be collected.

Not only are the greatest fighters in the world out to get you, but there are giant wasps, rockets, daggers and barrels to avoid. Swamps and geysers also need to be jumped over or you'll lose a life. Eventually you'll reach the temple where you have to answer questions asked by Buddha. To enter the temple you need three keys, a key is obtained by defeating two of the fighters. The lost civilisation will then be found.

Colour's not used much in this, but that doesn't matter because the digitised pictures make the game look very pretty. Animation of Bob and the other fighters is nifty and the other hazards are also well animated. There's a nice piece of music on the title screen. Effects in the game are less impressive.



● French boxing in Paris

Like most French software the graphics and music are excellent. Unfortunately there isn't enough game in there to play, all you do is walk around looking for the boxing glove, boot and pistol, hunting down opponents and jumping over things. A bit more gameplay could have made this an excellent game.
GBH

FIRST DAY TARGET SCORE
Collect two keys.

The Verdict

GRAPHICS 81%
- □ Beautiful background graphics.
- □ Animation is also smart.

SONICS 54%
- □ Great title tune.
- ■ In-game effects are less enjoyable.

GRAB FACTOR 64%
- □ Fighting your opponents is challenging.
- ■ Until practised you'll find swamp and volcano jumping frustrating.

STAYING POWER 57%
- ■ Not enough depth to the gameplay.
- ■ A bit too easy to complete.

AA RATING 60%
- ■ Needed to be larger and with more action.

SECOND OPINION

I really liked the idea behind this one, but, as in the past, there isn't enough depth or action to keep you hooked for long. The idea of battling at different combat sports is nice but three is too few. There's also the frustrating elements like dying or getting hit when there's nothing you can do to avoid it. A nice little game but not a world beater.
BW

GREEN SCREEN VIEW
You can still see everything clearly.

ENERGY WARRIOR

MAD X, £2.99 cass, joystick or keys

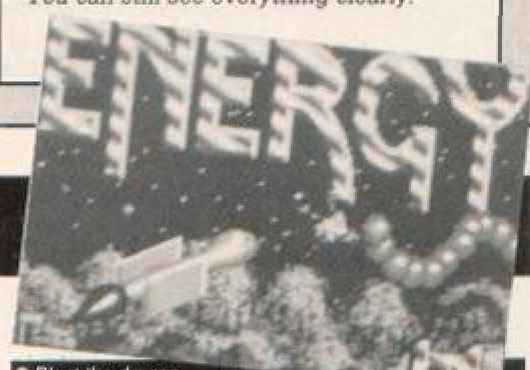
As a result of the star Cygnis Alpha going supernova, the inhabitants have left to find a new home. The new home they've chosen is earth and you've been given the task of removing the aliens.

The screen shows a horizontally scrolling landscape and below that is a panel that shows the region, status, name of area and it's aura. There are three regions: forest, islands and desert. Each region is divided into 10 areas. Every area has an aura that is gradually drained by the aliens. If the aura of an area is reduced to zero then it dies. If three areas lose their aura then you die.

There are a mixed assortment of aliens to blast away at which fly in a variety of formations. Some fly individually, some in rigid formation and some in follow-the-leader patterns. There are also dragons that have to be shot in the head several times. When a dragon dies it leaves an icon behind that you can collect to give you: more energy, aura repair, bombs, a mystery bonus and a key to exit the level. You'll also come across motherships which take 10 to 15 shots to destroy.

Sound is limited to simple blasting and exploding effects and there aren't any tunes. The horizontally scrolling landscape is fast, but only a small chunk scrolls to give the speed. The sprites are bright and colourful.

There's nothing exceptional about this game and it does get repetitive and tedious. The only thing that really makes this stand out is the fact that *Molecule Man* is on the B side of the tape. It's an old game re-released, but at least it means you get two games for £3. In fact *MM* is the better game – isometric 3D, maze designer and tough task.
GBH



● Blast the dragon

SECOND OPINION

Energy Warrior is a poor effort – instantaneously boring. The gameplay is dreadfully repetitive and requires no skill whatsoever. MM is much better but most fans of budget software will probably have got it already. We actually gave it a Rave way back in issue 11 and it still isn't bad today.
BW

GREEN SCREEN VIEW
Just as easy to see everything in green.

The Verdict

GRAPHICS 46%
- □ Fast horizontal scrolling.
- ■ Very little actually on the screen.

SONICS 61%
- □ Nice title tune.
- ■ Mediocre effects.

GRAB FACTOR 35%
- □ Sure is easy to start zapping away.
- ■ Virtually no skill required.

STAYING POWER 27%
- ■ Mindless blasting of the worst variety.
- ■ Not enough variation in the waves.

AA RATING 45%
- □ Two games for the price of one budget title.

TOURNAMENT OF DEATH

Infogrames, £9.95 cass, £14.95 disk, joystick or keys

Lee Enfield returns from his venture into the future in *Space Ace*, only to find out that the Yellow Shadow is up to mischief again. This time the setting is the 13th century in the castle that belongs to the Count of Savoy. The Holy Shroud is a great religious relic that's being guarded by the minions of your arch enemy, the Yellow Shadow.

The first thing that you'll notice about the game is the small playing area, it's only about a third of the screen. Down each side of it are strength indicators. The rest of the screen shows a picture of a knights head.

In the playing area you see a simple 3D representation of the room that you're in and any people in there. The people are all nasty and include guards, foot soldiers and bears. When you fight them you hold down the fire button and waggle like mad until they die. Some enemies are much stronger than others.



A tiny playing area and lousy animation

The loser is the first one to run out of strength on their indicator. Sometimes you find a chest that'll contain something useful like a suit of armour.

The graphics deserve a special mention because they are absolutely terrible. Not only do you have minute playing area with little detail in the graphics, but there's also the appalling animation. I thought, and hoped, that I'd seen the last of flickery animation, but Infogrames have managed to take it to an all time low. At least they haven't botched the music. Unfortunately when there are sound effects and music at the same time your ears beg for mercy.

A simple game with awful graphics and above average music. Let's hope Lee Enfield's next incarnation shows more promise than this one. **GBH**

The Verdict

GRAPHICS 28%
- □ A pretty picture of a knight fills most of the screen.
- ■ The worst animation for a long time.

SONICS 75%
- □ Excellent music.

GRAB FACTOR 34%
- □ Map makers may find something to interest them.
- ■ Control of Lee is a little tricky.

STAYING POWER 26%
- □ Finding the Holy Shroud and escaping with it will take a while...
- ■ if you can be bothered?

AA RATING 29%
- ■ Frustrating, repetitive, joyless.

SECOND OPINION

There I am peacefully wandering around a castle when this guy in a green cape leaps out and starts jittering around like he's just had a crab dropped down his trousers. Then it transpires that every few seconds I have to waggle violently to kill off the endless hordes of bad guys. And for what reward? Precious little. **BW**

GREEN SCREEN VIEW

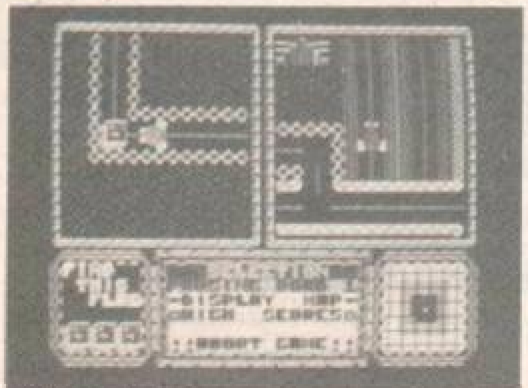
Some of the enemies disappear into the background.

FIRST DAY TARGET SCORE

Play the game for 10 minutes.

WAR CARS CONSTRUCTION SET

Firebird, £2.99 cass, joystick or keys



Collecting a flag

Hop into the driving seat of a chunky little car and prepare to race around a huge arena of roadways seeking flags. You compete against a computer opponent who also wants those very same flags.

The screen is split into three areas: two overhead views of the cars and a status panel. The status panel is split into three smaller areas: two panels that show how many flags you've collected (one for you and one for the computer) and a small scale map of the arena. On the map are three dots: your car, the computer car and the position of the flag. The roads aren't shown on the map so you have to work a route out by trial and error. The overhead views of the cars scroll in all four directions with your car remaining in the centre of the screen.

While looking for flags you can delay your opponent by dropping boulders in his path. After a while the boulders disappear. Extra boulders can be collected if you drive into a rock flag. Bonus points are gained when you find bonus flag. You can gain an extra life by hitting the car flag and running over the chase flag allows you to hit your opponents car without losing a life.

The Verdict

GRAPHICS 57%
- □ Smooth four way scrolling.
- ■ No animation.

SONICS 31%
- □ Effective explosions.

GRAB FACTOR 42%
- □ Undemanding, reflex gameplay.
- ■ Instantly mindless and requiring no skill.

STAYING POWER 34%
- □ Track editor to design your own courses.
- ■ Boredom sets in quickly with little variation from game to game.

AA RATING 37%
- ■ Less a war, more a quiet day on the software front.

SECOND OPINION

Simplicity itself in concept and not much fun to play. I expected a game called War Cars to be one with lots of action in it – not one where you have to avoid the other car. Even with a course designer you can't bring much interest into the game. **BW**

GREEN SCREEN VIEW

No problems seeing everything in green.

Up to five roadways can be defined using the track editor. The arena is very large so designing a track will be a long process. Once designed you can save it out to tape for later use.

The graphics are colourful and the four way scrolling is done well. There aren't any tunes and the effects are simple pings and explosions.

All there is to do is drive around a large playing area hunting for flags and after a few games it gets tedious. The track designer should make the game last longer, but since there's so little variation in play it makes little difference. **GBH**

FIRST DAY TARGET SCORE

5,000 points.


It's here-The return of Elvin Atombender!
IMPOSSIBLE MISSION II™
Unsurpassed Espionage Action...
After two year's wait at last it's arrived—the sequel to beat all sequels! Impossible Mission II retains all the fun and strategy of the original as once again you embark on the challenge to find a safe route to Elvin and the final showdown where he will meet his end! Search each room, find code numbers, objects and keys to help you with your mission. You must avoid or destroy the guards and robots that patrol the five towers or risk being destroyed yourself.
Successfully dispose of Elvin and your quest is half over! Now your Mission becomes truly Impossible as you strive to escape the towers, avoiding guards, robots, mines, trap doors and elevators without detection!
...From the lift you enter the first room...
...But where to next?...
...Who or what is lurking behind these cars?...
...Can you access the next tower?...
...Could the final P.I.N. number be here?...
...Running into more trouble?...
...Why is the robot guarding that table?...
...A message on the tape recorder?...
...Quick! Escape from Elvin!!...
Commodore 64/128 £14.99 disk £9.99 cassette
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Spectrum 48/128K £8.99 cassette
Atari ST £19.99 disk COMING SOON!
IBM PC & Compatibles £24.99 disk COMING SOON!
Impossible Mission is a Registered Trade Mark of EPYX Inc. EPYX is a Registered Trade Mark No. 1195270. ©1988 EPYX Inc. All rights reserved. Manufactured and distributed under licence from Epyx Inc. by U.S. Gold Limited, 2/3 Holford Way, Holford, Birmingham B6 7AX. Screens from Atari ST and Commodore 64 versions.
EPYX®

CHEAT MODE

Dick'n'Gary check out your tips, pokes and game-busting ploys. The best ones win an entire issue's *Raves* and the *Mastergame*. Send your latest gem to: Cheat Mode, *Amstrad Action*, 4 Queen Street, Bath BA1 1EJ

POKE METHODS FOR TAPE

Here is how to input the majority of Cheat Mode tape pokes. The instructions for each poke tell you which of the two different methods to use. If you have a 664 or 6128, first type |tape.

METHOD 1

Rewind the game tape to the beginning. Now type in the poke listing. Then type RUN and press the Enter key. (Don't use the key marked CTRL or Control; that would stop the poke from working.) Press the Play key on the cassette deck, then any key on the main keyboard - spacebar will do nicely. The tape should now start to play through in the normal way.

METHOD 2

For this method you have to skip the first bit of the game program. To do that, start by rewinding the game tape to the beginning. Now type in the listing. Then type CAT and press Enter. Start the tape by pressing Play and then any key. Then watch the screen.

Soon you'll get the message Found *something* Block 1. It doesn't matter what the *something* actually is; this will vary from one game to another. If the Cheat Mode instructions just tell you to skip the first block, you should stop the tape here.

If the instructions tell you to skip several things, stop the tape when the Found message comes up for the last thing you're trying to skip.

Once you've stopped the tape, press Escape, type RUN and press Enter. Now press Play on the tapedeck and any key on the keyboard to start the tape running

Pyramydya

Edward Reid of Glasgow has hacked into the budget game. It is entered using Method 1 and it gives you infinite lives and days.

```
1 ' PYRAMYDYA
2 ' by E.REID
3 ' AMSTRAD ACTION
4 ' APRIL 88
1Ø BORDER Ø:INK Ø,Ø:INK
1,25:INK 2,1
2Ø MODE 1:LOAD
"!PYROM",&CØØØ
3Ø MEMORY &12FF:LOAD
"!PYRA",&13ØØ
4Ø POKE &8EØ2,Ø
5Ø POKE &8EØ3,Ø:' INFI
DAYS
6Ø POKE &8EEA,&C3:' INFI
LIVES
7Ø CALL &788B
8Ø END
```

BARBARIAN
The Ultimate Warrior

Julian Page of Shrewsbury has sent in a disk poke for Palace's chop-em-up. You choose how many hits your opponent takes before he dies.

```
1 ' Barbarian - disk
2 ' by Julian Page
3 ' Amstrad Action April 88
1Ø DATA 21,ØØ,4Ø,11,4Ø,ØØ
2Ø DATA Ø1,d8,ØØ,ed,bØ,21
3Ø DATA 14,be,22,16,Ø1,c3
4Ø DATA 4b,ØØ,af,Ø1,7e,fa
5Ø DATA ed,79,3e,Ø1,32,46
6Ø DATA 6d,c3,f2,6a,JPS
7Ø MODE 1:LOCATE 1Ø,9
8Ø PRINT"Which side (1 or 2)
9Ø a$=INKEY$
1ØØ IF NOT (a$="1" OR
a$="2") THEN 9Ø
11Ø LOCATE 1Ø,9
12Ø PRINT"Which game (A or
B)"
13Ø b$=UPPER$(INKEY$)
14Ø IF NOT (b$="A" OR
b$="B") THEN 13Ø
15Ø LOCATE 2,9
16Ø INPUT "How many hits to
kill enemy (1-12);h
17Ø IF h<1 OR h>12 the 14Ø
18Ø n$="BARB"+a$+b$+".BIN"
19Ø x=&BEØØ:MEMORY &3FFF
2ØØ READ z$:IF z$="JPS" THEN
GOTO 23Ø
21Ø a=VAL("&"+z$):POKE x,a
22Ø ck=ck+a:x=x+1:GOTO 2ØØ
23Ø IF chk<>&C33 the 26Ø
24Ø CLS:LOCATE 4,9
25Ø PRINT"Insert disk side
";a$;" and press any key"
26Ø CALL &BB18
27Ø LOAD n$,&4ØØØ
28Ø POKE &BE1B,h
29Ø CALL &BEØØ
3ØØ LOCATE 4,9
31Ø PRINT"Data Error"
32Ø END
```

GRYZOR

Mike Wong of Sale has sent in this poke for the tape version of Ocean's *Rave* game. It gives you infinite lives and is entered using Method 1.

```
1 ' Gryzor - tape
2 ' Mike Wong
3 ' Amstrad Action April 88
1Ø DATA 2a,Øf,bc,22
2Ø DATA c7,be,21,Øe
3Ø DATA bc,36,c3,21
4Ø DATA 94,be,22,Øf
5Ø DATA bc,c3,17,32
6Ø DATA 3e,ØØ,cd,c6
7Ø DATA be,3a,c5,be
8Ø DATA 3c,32,c5,be
9Ø DATA fe,Ø2,cØ,21
1ØØ DATA aa,be,22,5a
11Ø DATA 34,c9,dd,21
12Ø DATA 5b,a6,11,ØØ
13Ø DATA Ø1,cd,ea,a5
14Ø DATA 21,bd,be,22
15Ø DATA ØØ,a7,c3,85
16Ø DATA a6,3e,a7,32
17Ø DATA 26,15,c3,19
18Ø DATA Ø4,ØØ,cf,ØØ
19Ø DATA ØØ,53,5Ø
2ØØ FOR n=&BE8Ø TO &BECA
21Ø READ a$:x=VAL("&"+a$)
22Ø y=y+x:POKE n,x:NEXT
23Ø IF y<>8Ø15 THEN 17Ø
24Ø MEMORY 12345:MODE 1
25Ø LOAD"":CALL &BE8Ø
26Ø PRINT"ERROR..."
27Ø END
```



Renegade

Sudo and **Psycho** have hacked the disk version of Imagine's beat-em-up. It's the sepoke in as many months but it not only gives you infinite lives but infinite time as well. Enter it using Method 1.

```
1 ' Renegade - disk
2 ' Wayne and Gary
3 ' Amstrad Action April 88
1Ø MODE Ø
2Ø BORDER Ø
3Ø FOR c=Ø TO 15
4Ø READ c$:INK c,VAL("&"+c$)
5Ø NEXT
6Ø FOR n=Ø TO 199
7Ø READ n$
8Ø POKE &515Ø+n,VAL("&"+n$)
9Ø sum=sum+VAL("&"+n$)
1ØØ NEXT
11Ø IF sum<>&4386 THEN 67Ø
12Ø CALL &515Ø
13Ø DATA ØØ,Ød,1a,Øc
14Ø DATA 19,Ø9,15,Øa
15Ø DATA 14,Ø1,Ø2,Øb
16Ø DATA 1Ø,Øf,Ø3,Ø6
17Ø DATA Ø6,Ø4,21,ØE
18Ø DATA 52,11,12,52
19Ø DATA CD,77,BC,21
2ØØ DATA 4Ø,ØØ,CD,83
21Ø DATA BC,F3,21,4Ø
22Ø DATA ØØ,11,ØØ,A8
23Ø DATA Ø1,C1,Ø2,3E
24Ø DATA 8B,CD,95,51
25Ø DATA 21,2E,A8,11
26Ø DATA 6E,ØØ,Ø1,93
27Ø DATA Ø2,3E,BØ,CD
28Ø DATA 95,51,21,4Ø
29Ø DATA ØØ,22,35,A8
3ØØ DATA 3E,C9,32,68
31Ø DATA A8,CD,2E,A8
32Ø DATA 21,A4,51,22
33Ø DATA F3,A8,C3,CE
34Ø DATA A8,ED,4F,ED
35Ø DATA 5F,AE,77,ED
36Ø DATA AØ,ØØ,ØØ,ØØ
37Ø DATA EA,97,51,C9
38Ø DATA 21,AF,34,36
39Ø DATA 7C,21,B5,34
4ØØ DATA 36,84,21,A4
41Ø DATA 34,36,Ø3,21
42Ø DATA 22,ØA,36,ØØ
43Ø DATA 21,29,ØA,36
44Ø DATA C3,21,B5,25
45Ø DATA 36,C9,CD,C8
46Ø DATA 51,C3,4Ø,ØØ
47Ø DATA 21,E3,51,11
48Ø DATA F5,2F,Ø6,Ø7
49Ø DATA 7E,12,23,13
5ØØ DATA 1Ø,FA,7E,FE
51Ø DATA FF,C8,Ø1,Ø6
52Ø DATA ØØ,EB,Ø9,EB
53Ø DATA C3,CE,51,43
54Ø DATA 48,45,41,54
55Ø DATA 2Ø,2Ø,42,59
56Ø DATA 2Ø,2Ø,2Ø,2Ø
57Ø DATA 2Ø,53,55,44
58Ø DATA 4F,2Ø,2Ø,2Ø
59Ø DATA 41,4E,44,2Ø
6ØØ DATA 2Ø,2Ø,2Ø,5Ø
61Ø DATA 59,53,43,48
62Ø DATA 4F,2Ø,4Ø,31
63Ø DATA 39,38,38,2Ø
64Ø DATA 2Ø,FF,41,41
65Ø DATA 41,41,ØØ,ØØ
66Ø DATA ØØ,ØØ,ØØ,ØØ
67Ø PRINT"Error in data"
68Ø END
```

Kevin Hodges of Ashford has found a cure for the blue blood problem in *Renegade*. Press the following keys and the blood will become a more natural red: W, A, D, Space, ESCape, O, fullstop and the small enter key.

Mike Wong of Sale has sent in a playing guide to Imagine's beat-em-up.

Stage 1: Go to the extreme left facing the wall. You do this by pushing an attacker towards the wall, but just before reaching the end, you stop. The hitmen will go round you and close in, but you can back-kick them as they approach. You can also flykick as well.

If you are quick enough the boss can be defeated this way, but watch out, he is a good kicker. If not, try "Big Bertha" tactics; get away from the wall and steer clear of attackers. As they approach, flykick twice. Before they recover, move back a bit so you are in a position to repeat the flykicks.

Stage 2: The Bikers. Always stay in the middle or you will not have time to move away if a biker appears on your near side. If you miss repeatedly but don't get run over, then flykick a little later or earlier – it usually works. Aim to knock the bikers off as quickly as possible so you can complete the level.

1st time:	4 bikers
2nd	5
3rd	12*
4th	14*

*really six and seven bikers but each must be felled twice

The Gang: don't try using the pier as it is all too easy to fall off (applies to level one also). You can use the same tactics as in level one, but this time move to the right. The boss only punches and does roundhouse kicks. You can out-punch the boss, but more importantly, the back-kicks will always work on him.

Stage 3: Try to dispose of as many minions as possible. When Big Bertha comes, you can fell her with flykicks when she runs at you. Always chose a clear spot to wait for her approach or else you may get clubbed or whipped when you flykick. If you ever get your back facing her and you're pushing her backwards, then just do 3 flykicks to knock her down. Alternatively, just do 2 flykicks and carry on pushing. She'll recover and you can repeat the process...

But note Big Bertha cannot be kneed. Also, you need either a pummel or flykick to finish her.

Stage 4: Stay against the back wall again and follow tactics above. Take care, always time your back-kicks so that you get two knifemen at once or else while you're kicking one, the other will knife you (ie, don't stagger your back kicks). If you're feeling adventurous, back-kick once, flykick, then pummel both while they are knocked out. This method is quicker and gives more time against the Big Boss...

Stage 5: Forget about finishing off all the knifemen. You won't have enough time to get the boss. You have to push the boss until you are on the back wall. As he backs away, flykick both him and his knifemen until he falls. You must do this before he gets out of range or else he will shoot you. Now, move away by pressing the UP key (very important – if not, you will go into pummel position and get knifed). Repeat until the boss is dead. Alternatively, you can out-punch the boss, but be careful not to "over-punch" or a knifeman will have a chance to get you. Don't do B.B. tactics or you will be shot.

General: (1) Each time you complete the game you get an extra life, maximum five. (2) All bosses can be pummelled or kneed, if their energy is two or less.

DRILLER

More tips to help you to complete Incentive's *Mastergame*. They come from Incentive themselves.

Quicker Movement

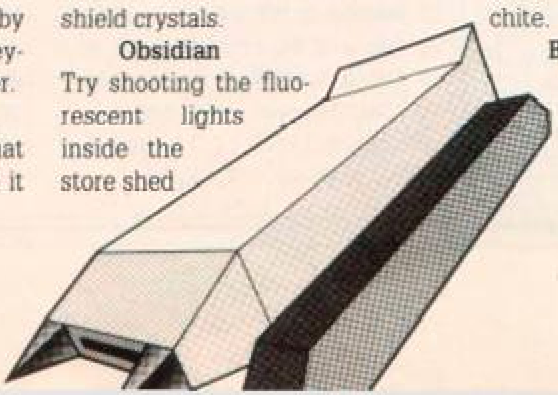
You can move twice as fast by using both the joystick and keyboard movement controls together.

Amethyst

In the stores shoot the pillar that supports the energy crystal and it will disappear. The crystal will fall and is then worth double the energy. Shooting the supported crystal will regenerate the three other shield crystals.

Obsidian

Try shooting the fluorescent lights inside the store shed.



Ochre

The forcefield can be deactivated by resetting two switches, one in Graphite and the one in K3 in Malachite.

Basalt

Shoot the pyramid from the top downwards for a maximum score.

Aquamarine

Shoot the crack between the doors when they're closed for a 10,000 point bonus.

Ruby

To travel safely around the girders reduce your height to zero, step to 50 and set the angle to 90. As you proceed to a junction you can look left or right each time you move forward until you are lined up for a change of direction.

Diamond

The crystals have special properties when touched.

Cheat Mode

For unlimited shields go to Obsidian and laser the southern section of ground.

Gauntlet II

Phil Howard of Mapperley has been at it again, this time it's US Gold's *Rave* that gets hacked. It's entered using Method 1 and gives you a choice of infinite health or a 300 health boost, instead of 100, when you pick up food.

```
1 ' Gauntlet II - tape
2 ' by Phil Howard
3 ' Amstrad Action April 88
10 DATA cd,18,bb,f5,21,70
20 DATA 01,11,87,92,3e,16
30 DATA cd,a1,bc,21,b7,01
40 DATA 11,40,02,3e,ab,ae
50 DATA 77,23,1b,7a,b3,20
60 DATA f6,f1,fe,31,28,05
70 DATA 21,82,05,18,03,21
80 DATA 89,05,22,3d,03,c3
90 DATA b7,01,21,bc,2d,36
100 DATA 03,18,05,21,38,23
110 DATA 36,c9,c3,a0,00
120 MODE 1:y=0
130 FOR x=&550 TO &590
140 READ a$:a=VAL("&"+a$)
150 POKE x,a:y=y+a:NEXT
160 IF y<>&15D4 THEN 200
170 PRINT"1) Infinite
Health"
180 PRINT"2) Extra Bonus"
190 CALL &550
200 PRINT"Data Error"
210 END
```

Harrier Attack!



Edward Reid from Glasgow has hacked into Amsoft's old shoot-em-up. It's entered using Method 1.

```
1 ' Harrier Attack - tape
2 ' Edward John Reid
3 ' Amstrad Action April 88
10 MODE 1
20 MEMORY &7FFF
30 LOCATE 15,10:PRINT
"PLEASE WAIT"
40 LOCATE 15,12:PRINT "LOAD-
ING...."
50 LOAD "!HARRIER ATTACK",
&8000
60 POKE &807F,&C9
70 CALL &8000
80 POKE &A538,0:' STOP ENEMY
90 POKE &A53B,0:' MISSILES
100 POKE &A6CE,0:' INF MIS-
SILES
110 POKE &A6CF,0:' BOMBS &
FUEL
120 CALL &9111
130 END
```

Masters of the Universe

Darren Ash of Highbridge has sent in this poke for many or infinite lives, in Gremlin's game of universal domination. It's entered using Method 1.

```
1 ' Masters of the Universe
2 ' by Darren Ash
3 ' Amstrad Action April 88
10 FOR t=&50 TO &80
20 READ a$:i=VAL("&"+a$)
30 POKE t,i:NEXT
40 INPUT"No of lives(0-
255)",a
50 POKE &76,a
60 POKE &7B,0:' inf lives
70 CALL &50
80 DATA 06,00,21,00
90 DATA 01,11,00,01
100 DATA cd,77,bc,21
110 DATA 00,01,cd,83
120 DATA bc,cd,7a,bc
130 DATA 21,3b,02,36
140 DATA c3,23,36,72
150 DATA 23,36,00,cd
160 DATA 00,01,fe,01
170 DATA f5,3e,04,32
180 DATA 46,62,3e,3d
190 DATA 32,a9,65,f1
200 DATA c9
210 END
```

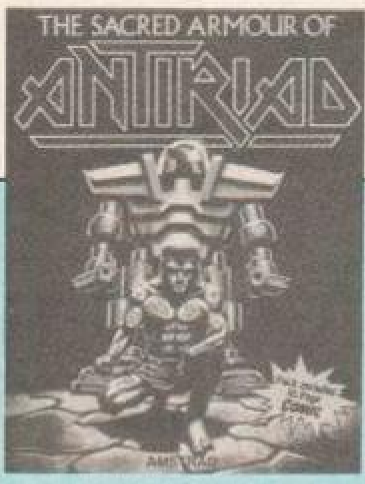


Space Harrier

Nicolo Gavazzeni of Italy has sent in this poke for Elite's arcade conversion. It gives you 240 lives and is entered using Method 2, skip the file "Elite" and run the program.

```
1 ' Space Harrier - tape
2 ' by Nicolo Gavazzeni
3 ' Amstrad Action April 88
10 FOR a=0 TO 15:READ b
20 INK a,b:NEXT
30 MODE 0:BORDER 0
40 LOAD "!screen",49152
50 OPENOUT "d":MEMORY 949
60 CLOSEOUT
70 LOAD "!block",950
80 DATA
0,26,6,0,0,9,2,25,15
90 DATA 3,16,10,13,21,14,20
100 addr=&ED0:FOR x=0 TO 51
110 READ a$
120 POKE addr+x,VAL("&"+a$)
130 NEXT:POKE &583,&EF
140 CALL 950
150 DATA 5f,48,45
160 DATA 4c,4c,4f,5f
170 DATA 54,48,45
180 DATA 52,45,5f,5f
190 DATA fe,51,c3
200 DATA 32,2e,5f,43
210 DATA 49,41,4f
220 DATA 5f,41,5f,54
230 DATA 55,54,54
240 DATA 49,5f,fe,d1
250 DATA c3,33,2e
260 DATA 5f,5f,5f,44
270 DATA 41,5f,4e
280 DATA 49,43,4f,4c
290 DATA 41,5f,5f
300 END
```

Antiriad

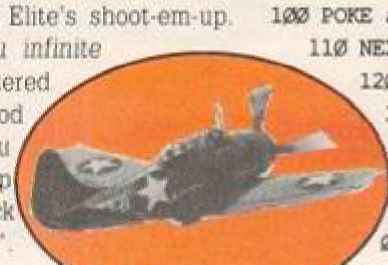


Colin Ward of New Milton has sent in a poke for the Hit Pak disk version of the game. It gives you invulnerability, no energy drain and no need to find the gravity boots or the pulsar beam. The suit is also made invulnerable to radiation.

```
1 ' Antiriad - disk
2 ' by Colin Ward
3 ' Amstrad Action April 88
10 DATA 21,00,00
20 DATA 3e,b7,32,be
30 DATA 5b,32,58
40 DATA 6f,22,3a,6f
50 DATA 3e,00,32
60 DATA 49,57,32,f4
70 DATA 64,c3,00
80 DATA 54,c9,06,09
90 DATA 21,2f,01
100 DATA cd,77,bc,21
110 DATA 00,02,cd
120 DATA 83,bc,cd,7a
130 DATA bc,c3,00
140 DATA 01,00,41,4e
150 DATA 54,49,31
160 DATA 2e,42,49,4e
170 MEMORY &5000
180 MODE 1:check=0
190 INK 0,0:INK 2,1
200 BORDER 0:INK 3,2
210 LOAD"anti2.bin",&5400
220 LOAD"anti3.bin",&C000
230 FOR x=&100 TO &137
240 READ a$
250 POKE x,VAL("&"+a$)
260 check=check+VAL("&"+a$)
270 NEXT
280 IF check<>4697 THEN 300
290 CALL &11A
300 PRINT"Data Error"
310 END
```

1942

Nicolo Gavazzeni from Italy has hacked into Elite's shoot-em-up. It gives you infinite lives. It's entered using Method 2 and you have to skip the first block called "Elite".



```
1 ' 1942 - tape
2 ' Amstrad Action April 88
3 ' by Nicolo Gavazzeni
10 BORDER 2:MODE 0
20 FOR a=0 TO 15:READ b
30 INK a,b:NEXT
40 LOAD"!screen.scn",&C000
50 DATA 0,13,26,12,24,9,18
60 DATA 10,20,1,2,11,4
70 DATA 15,3,6
80 addr=&BE00:RESTORE 120
90 FOR x=0 TO 59:READ a$
100 POKE addr+x,VAL("&"+a$)
110 NEXT:CALL &BE00
120 DATA
3e,ff,cd,6b,bc,00
130 DATA
06,04,21,38,be,11
140 DATA
00,9c,cd,77,bc,21
150 DATA
58,02,cd,83,bc,cd
160 DATA 7a,bc,21,bd,26,36
170 DATA c3,23,36,7c,23,36
180 DATA 2b,21,c6,26,36,00
190 DATA 23,36,00,23,36,00
200 DATA 21,1c,25,36,00,cd
210 DATA b3,89,31,39,34,32
220 END
```

Duet

Another poke by **Darren Ash** of Highbridge. This is a Method 1 poke for the Hit Pak game. It gives you infinite energy and keeps enemy soldiers in the bunkers.

```
1 ' Duet
2 ' By D.Ash
3 ' Amstrad Action April 88
1Ø BORDER Ø
2Ø DATA Ø,13,26,15,14,24,3,9
3Ø DATA 18,16,6,17,11,1,2,17
4Ø FOR t=Ø TO 15:READ a
5Ø INK t,a:NEXT t
6Ø MODE Ø
7Ø LOAD"!duet.scn",&CØØØ
8Ø MEMORY 4999
9Ø LOAD"!duet.bin"
1ØØ POKE &1D6B,&C9
11Ø POKE &2541,&C9
12Ø MEMORY &7FF
13Ø CALL &9FAØ:CALL &8ØØ
14Ø END
```

How to win an ENTIRE ISSUE'S rave software!

If you want to win an entire issue's *Rave* software, including the *Mastergame*, then all you have to do is produce an excellent map, poke or playing tips. The best solution will win a copy of every *Rave* and the *Mastergame* from the issue in which the solution is printed. The number of games will vary of course, but it should be at least five, but in a good issue it may meet double figures. We also give runner-up prizes every month of a *Rave* or the *Mastergame* in that issue.

Darren Ash wins this months prize of all the *Raves* and the *Mastergame* for his selection of pokes. The runners up who'll receive either the *Mastergame* or a *Rave* are: **Mike Wong**, **Nicolo Gavazzeni**, **Edward Reid**, **Sudo and Psycho** and **Julian Page**.

CLASSIC COLLECTION

The section where we reprint requested favourite pokes from the past. If you missed out on a poke for a game then write and let us know which ones you'd like to see again.

Ikari Warriors

This is a Method 1 poke that gives you a choice of different effects that you can delete if you don't want to use them. Line 7Ø gives you infinite fire, line 8Ø makes all the enemy soldiers disappear, line 9Ø stops bullets from killing you, line 1ØØ lets you walk unharmed through explosions and line 11Ø keeps explosions on screen.



```
1 ' Ikari Warriors - tape
2 ' Amstrad Action April 88
1Ø SYMBOL AFTER 256
2Ø OPENOUT"d"
3Ø MODE Ø:BORDER 2
4Ø MEMORY 4799
5Ø LOAD"warriors"
6Ø FOR a=Ø TO 2
7Ø POKE &1C82+a,Ø
8Ø POKE &1CA3+a,Ø
9Ø POKE &1CA6+a,Ø
1ØØ POKE &1CAF+a,Ø
11Ø POKE &1CC7+a,Ø
12Ø NEXT
13Ø FOR a=Ø TO 17
14Ø READ a$
15Ø POKE
&FFDØ+a,VAL("&"+a$)
16Ø NEXT
17Ø CALL &FFDØ
18Ø DATA f3,31,ØØ,ØØ
19Ø DATA 21,cØ,12
2ØØ DATA 11,ØØ,Ø1,ØØ
21Ø DATA bf,ed,bØ
22Ø DATA c3,ØØ,Ø1
23Ø END
```

3D Starstrike

Here's a poke that replenishes your shields at the end of every run and keeps you on level one. It's entered using Method 1.

```
1 ' Starstrike
2 ' Amstrad Action April 88
1Ø MEMORY 5119
2Ø BORDER Ø:MODE Ø
3Ø FOR g=Ø TO 15
4Ø READ p:ink g,p
5Ø NEXT
6Ø DATA Ø,2,6,8,18,2Ø
7Ø DATA 24,26,26,26,26
8Ø DATA 26,26,26,26,15
9Ø LOAD"SETUP.BIN",&8ØØØ
1ØØ CALL 365Ø6
11Ø LOAD"!CODE.BIN",512Ø
12Ø POKE 9792,Ø:POKE 9793,Ø
13Ø POKE &2665,Ø
14Ø CALL 1Ø14Ø
15Ø END
```

Heavy on the Magick

This poke gives you 99% skill, stamina, luck and experience. You'll also have all the spells and be grade 1Ø. Run the poke and the load the game. Use option 5 to restore Axil and enter version A.

```
1 ' Heavy on the Magick
2 ' Amstrad Action April 88
1Ø DATA 1,15Ø,15Ø,15Ø
2Ø DATA 1Ø,15Ø,47,1Ø2
3Ø DATA 128,17Ø
4Ø FOR n=43Ø9Ø to 43Ø99
5Ø READ a
6Ø POKE n,a
7Ø NEXT
8Ø POKE 43116,248
9Ø SAVE"AXIL-A",b,43Ø9Ø,27
```

Boulderdash

Here's a poke for infinite lives in the game of cave exploration. It also allows you to start in any cave from A to M on levels 1, 2 and 3. It's entered using Method 1.

```
1 ' Boulderdash - tape
2 ' Amstrad Action April 88
1Ø MODE 1
2Ø MEMORY &7FFF
3Ø FOR n=&9ØØØ TO &9Ø1E
4Ø READ a$
5Ø POKE n,VAL("&"+a$)
6Ø NEXT
7Ø PRINT"Insert Tape and
press play"
8Ø CALL &9ØØØ
9Ø DATA 21,ØØ,Ø2,11,25,7Ø
1ØØ DATA 3E,87,CD,A1,BC,AF
11Ø DATA 32,8Ø,1B,32,81,1B
12Ø DATA 32,82,1B,3C,32,54
13Ø DATA 19,32,74,19,C3,52
14Ø DATA 1F
15Ø END
```

Sweevo's World

No energy loss, a happy smiling face and 255 lives are yours if you use this poke for Gargoyle's game. Enter it using Method 1.

```
1 ' Sweevo - tape
2 ' Amstrad Action April 88
1Ø OPENOUT"D":MEMORY &5DØ
2Ø CLOSEOUT
3Ø LOAD"",&5DC
4Ø FOR y=&643 TO &665
5Ø POKE Y,Ø:NEXT
6Ø LOAD"SWEEVO.BIN",&3Ø4Ø
7Ø POKE &9EC8,255
8Ø POKE &9ØØ3,5:POKE &9ØØ4,Ø
9Ø POKE &91EØ,4:POKE &91E1,Ø
1ØØ CALL &5DC
11Ø END
```



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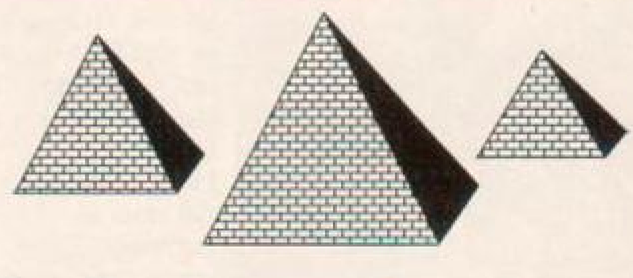
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THE PILGRIM

What a month! No April fools here as the Pilg provides an exclusive round-up of the most influential CPC adventure software houses and pronounces judgement on the future of Amstrad adventuring, including how to buy the Quill and the Illustrator for £3.99 each. PLUS the beginning of a do-it-yourself adventure listing that enables YOU to decide what goes where.

Let's face it, the number of quality adventure releases for CPCs has been falling off lately. Some pessimists are even predicting the demise of the CPC adventure market, with a future limited to home-brew GAC titles and the occasional budget release. Is this true, or is it just another bout of CPC-bashing?

The first point to make is that quality adventure releases have never been all that numerous for the Amstrad 8-bit machines, for the simple reason that commercially-released adventures, for all machines, tend to be slow in appearing and few in number. The only exception has been the Commodore 64, which has benefitted from the UK adventure market and also the American graphic adventure scene, with titles like *Guild of Thieves* and *Jewels of Darkness* on the one hand, and *Borrowed Time* on the other.

No such luck for the Spectrum and Amstrad machines, however. In fact Spectrum owners have been even worse off than us CPC fans. The Sinclair machine has been limited to UK-only products (and all tape-loading at that) while CPC owners have benefitted occasionally from the French market with games from Infogrames – of variable quality, but one or two worthwhile titles nevertheless. What's more, the disk option on the Amstrads has given those of us with drives the option of exploring Infocom and other disk-based games that Spectrum owners can only dream of.

Secondly, all computers have suffered from the view of most software houses, which is that adventure games are poor sellers and, if they are to sell at all, need licenses or clever graphics to make it through the distribution network and onto the shelves. GAC and The Quill have helped by making amateur programs available cheaply enough for them to be considered as budget releases, but the long-term benefit of this is likely to be eroded with the release of GAC for the Atari ST and a greater number of home-coders being tempted onto bigger machines by more facilities and healthier prospect for sales.

Now for the good news...

Despite this situation, some software houses have discovered that adventures, while not selling quite so quickly as arcade titles, still manage to bring in a few pennies by virtue of their long sales life. Believe it or not, games like *The Hobbit* and *The Pawn* are still selling, months or even years after their initial release, whereas most arcade titles have a shelf life of only a few weeks.

There's no doubt that software releases for the CPCs are slowing down, but that's inevitable and the silver lining is that, for adventurers, there are still good buys to be had, both now and in the future. With that in mind, check out the following status up-date from the country's best-known adventure publishers.

☛ Melbourne House

Adventure releases haven't been the order of the day since this company was taken over by Mastertronic, but the good news is that 'Tronic's buying power has brought a host of back-catalogue titles that can now be snapped up at bargain prices. Mastertronic have several labels, and it's not exactly clear at the time of going to press which label titles are to be released under. Check with them on 01-377 8411 for further details.

The Melbourne House label still has *The Hobbit*, *Lord of the Rings*, *Redhawk*, and *Kwah!* available. Check the above number for price details.Of particular interest are the following re-releases of Gargoyle games, which must represent some of the best budget bargains around:

Tir-Na-Nog £1.99
DunDarach £1.99
Marsport £1.99
Heavy On The Magik £1.99

☛ Gilsoft

What a bargain for CPC owners here! Because of the growing interest in 16-bit machines, all those CPC fans of the Quill and the Illustrator can now get these packages for the astonishing price of £3.99! Buy both programs together and you pay only £5.99. These titles can now be bought direct from Gilsoft (Tel: 0446 732765 for further details) plus 50p for post and packaging. Note that you get the cassettes and manuals only – the original fancy boxes are no longer available.

Gilsoft have also produced the Professional Adventure Writer for Amstrad CPM machines. This advanced version of the Quill has already been written about in this column by Pat Winstanley, but the good news is that it will run on any CPC CPM system – including 464 and 664 machines.

☛ CRL

CRL are still giving lots of support to the CPC market. Some of their games are in slightly dubious taste, but people with strong stomachs and blunted moral sensibility can still have a crack at *Jack the Ripper* and the more recent *Wolfman*. *Dracula* and *Frankenstein* are older titles – they didn't make much of an impression on the Pilg, to be honest, but they make up for lack of size in terms of tough puzzles.

Rather more interesting is CRL's release of *Federation* for the Amstrad in the next couple of months. We'll be reviewing this in the next issue, but what's important here is that the game is an uprated version of *Quann Tulla* by veteran budget software house 8th Day. If the game succeeds, then CRL might tackle some of 8th Day's other games, and since there are quite a number of them that could mean a steady flow of competent titles over the next year.

☛ Incentive

Not such good news here, unfortunately. Now hard at work on STAC (GAC for the ST) Incentive no longer anticipate giving such strong support to the CPC market as before. Their double cassette featuring *Nova* and *Haunted House* is still available, but fellow Pilgs may recall that this is

CONTINUED ON PAGE 66

The Adventure Begins...

This month sees the beginning of a major programming project, which will enable you to write a complete Basic adventure, and tailor it to your own design. Interactive characters, speech and character control will all be featured in the listing, which you can modify by following simple instructions.

The listing on these pages is the longest you will ever have to type in – each month a short module will be published on the Pilgrim pages, and providing you have your earlier entries saved on disk or tape, you will be able to add the new module by simply typing in a few lines of Basic.

All modules will be accompanied by a full explanation of how they work, so the program will not only give you the fun of designing your own game, but will also help you to improve your own understanding of adventure programming techniques.

So off you go....!

What You Have To Do...

Type in this listing. It will form the core of the main game, which will be added to each month. When you run the listing, you will find that the program clears the screen and asks you for an input.

Next month, we add the routine that enables you to move from room to room, and explain how to add extra locations and exits if you wish. You will also be able to change the location descriptions to create your own game design, so get your adventure designer's hat on and start tapping those keys!

```
10 GOSUB 9940
20 REM initialise variables and screen
30 '
40 '
50 REM initialise game elements
60 nobnames=3: nobjects=2: ndirections=16:
nverbs=2: nlocations=2: maxwords=4
70 DIM location$(nlocations), exitcode(nloca
tions), object$(nobjects), obloc(nobjects),
obstat(nobjects), word$(maxwords)
80 '
90 '
100 REM intialise screen display
110 MODE 2: WINDOW #1,2,30,19,24: WINDOW
#2,1,80,1,4: WINDOW #3,33,79,19,24: WINDOW
#4,1,80,6,6: WINDOW #5,1,80,8,9: WINDOW
#6,1,80,11,17
120 ' 1=input, 2=location description, 3=errors,
4=exits, 5=visible objects, 6=responses
130 '
140 '
150 REM store widths of windows
160 DIM wide(6): wide(0)=80: wide(1)=29:
wide(2)=80: wide(3)=47: wide(4)=80: wide(5)=80:
wide(6)=80
170 '
180 '
190 REM clear two windows and divide screen
200 PEN #2,2: PAPER #2,1: PEN #6,2: PAPER
#6,1: CLS #2: CLS #6
210 MOVE 0,116: DRAW 242,116: DRAW 242,0:
DRAW 0,0: DRAW 0,116: MOVE 246,116: DRAW
639,116: DRAW 639,0: DRAW 246,0: DRAW
246,116
220 '
230 '
240 REM initialise objects and locations
250 REM read object data into array
260 RESTORE 5030
270 FOR x=1 TO nobjects
280 READ object$(x),obloc(x),obstat(x)
290 NEXT x
300 RESTORE 5100
310 FOR x=1 TO nlocations
320 READ location$(x), exitcode(x)
330 NEXT x
340 '
350 '
360 REM initialise players location
370 ppos=2
380 '
390 '
400 REM main game loop starts here
410 ' 1. print location description in window 2
420 CLS #2: PRINT #2, USING "&";"You are in ";
location$(ppos): PRINT #2
430 ' 2. print the exits in window 4
440 exitprint=0:RESTORE 530 'set exitprint
flag/data pointer
450 FOR x = 1 TO 8
460 READ direction$, dircode
470 IF (exitcode(ppos) AND dircode)<>dircode
THEN GOTO 520
480 IF exitprint>0 THEN GOTO 510
490 exitprint=1
500 PRINT #4, "Exits lead ";direction$;: GOTO
520
510 PRINT #4, ", ";direction$;
520 NEXT x
530 DATA North,128,Northeast,64,East,32,
Southeast,16,South,8,Southwest,4,West,2,
Northwest,1
540 '
550 ' 3. Print the visible objects in window 5
560 CLS #5: obprint=0 'set the object print flag
570 FOR x=1 TO nobjects
580 IF obloc(x)<>ppos THEN GOTO 630
590 IF obprint>0 THEN GOTO 620
600 obprint=1
610 PRINT #5, "You can see ";object$(x);
```

Calls a short machine-code set-up routine that will, at a later stage of program development, allow us to control interactive characters while waiting for the player to hit a key.

We set up variables to tell us how many objects, verbs, and so on there are in the game so that if you want to add, for example, your own object later, you need only change the values in this line to tell the program that there's a new object to be considered.

OBLOC gives the object's start location; OBSTAT stores information about its status. The program will constantly update these variables during play.

We'll print a list of arrays and variables in next month's issue, so you can see what they each represent.

EXITCODE stores the exit information for each location in binary format. This method was explained in an earlier issue. See next month's column for a recap of this technique. DIRCODE in line 460 operates in a similar manner.

Line 210 draws outline borders round each window.

A quick note to remind you which window is used for what purpose.

The widths of windows are stored in arrays, so that we can develop a text formatting routine for each window later in the program.

The player starts in location 2, the description of which is to be found in line 5110. If you want to print up the description of location 1, change this line to PPOS=1.

This is where the main game loop starts. It has six sections, the first five of which are included this month. Each section is numbered and titled in a REM statement on lines 410, 430, 550, 650, and 800. Section 6 – "JUMP TO APPROPRIATE ACTION SUB-ROUTINE" will be entered next month, allowing you to begin the process of including your own adventure commands.

If we've already printed a direction on the screen, we just want to print a comma and add another one to the list, which we do by jumping to line 510. Otherwise we print "Exits lead " first, in line 500. Compare line 590.

```
GOTO 630
620 PRINT #5, ",";object$(x);
630 NEXT x
640 '
650 ' 4. Get an input
660 i$=""
670 PRINT #1, CHR$(243);" ";
680 a$=INKEY$: IF a$="" THEN 680
690 IF (ASC(a$)<65 OR ASC(a$)>122) THEN
680
700 POKE pk,ASC(a$): CALL cl: LINE INPUT #1,
i$
710 '
720 REM split input up into separate words
730 i$=i$+CHR$(32): words=1
740 FOR letter = 1 TO LEN(i$)
750 t$=MID$(i$,letter,1)
760 IF ASC(t$)<>32 THEN word$(words) =
word$(words)+t$: GOTO 780
770 words=words+1:IF words>maxwords THEN
PRINT #3,"Help! I can't cope with that many
words.": letter=LEN(i$)
780 NEXT letter
790 '
800 ' 5. Check words against vocabulary.
●810 verb=0: object=0: direction=0: oops=0
820 FOR x=1 TO (words-1)
830 wordchecked=0
840 '
850 REM check for a verb
●860 RESTORE 5500
870 FOR v=1 TO nverbs
880 READ verb$
●890 IF word$(x)<>verb$ THEN GOTO 930
ELSE v=nverbs
●900 IF verb>0 THEN PRINT #3, "Too many verbs
in that sentence.": oops=1: GOTO 930
●910 IF object>1 THEN PRINT #3, "Too many
objects in that sentence...": oops=1: GOTO 930
●920 verb=v: wordchecked=1
930 NEXT v
●940 IF (wordchecked OR oops)>0 THEN
GOTO 1980
950 '
960 REM check for object
●970 RESTORE 5600
980 FOR o=1 TO nobnames
990 READ obname$,obno
●1000 IF word$(x)<>obname$ THEN
GOTO 1040 ELSE o=nobnames
●1010 IF object>0 THEN PRINT #3, "Too many
objects in that sentence.": oops=1: GOTO 1040
●1020 IF verb=0 THEN PRINT #3, "Do
WHAT with ";object$(obno): oops=1: GOTO 1040
●1030 object=obno: wordchecked=1
1040 NEXT o
●1050 IF (wordchecked OR oops)>0 THEN
GOTO 1980
1060 '
1070 REM check for a direction
●1080 RESTORE 5700
1090 FOR d=1 TO ndirections
1100 READ direction$,dircode
1110 IF word$(x)<>direction$ THEN
GOTO 1160 ELSE d=ndirections
1120 IF direction>0 THEN PRINT #3, "Too many
directions...": oops=1: GOTO 1160
●1130 IF words>2 THEN PRINT #3, "Please
rephrase that...": oops=1: GOTO 1160
●1140 IF (dircode AND exitcode(ppos))<>dircode
THEN PRINT#3, "You can't go in that
direction...": oops=1
```

If you've been following the Pilgrim Programming course...

Then you can really cut down on your typing in this issue. If you entered the listing printed in Issue 26, you will have noticed that there were a small number of misprints. That listing was intended to be a part of an introductory adventure which we would run before the main game was published. However, in view of the misprints that crept in, we decided to kill two birds with one stone and incorporate the corrected version into the main game itself. That game starts here – and believe us, it'll be worth the finger-ache when it's finished!

Meanwhile, by editing the listing you typed in, you can immediately get Part 1 of the main adventure into your CPC. And if you've followed the course previously, you will have a better understanding of the principles involved as we deal with each of them in turn.

So, if you did type in the listing in Issue 26, save time by loading it up and simply editing those lines where your version differs from the one printed here. To make this easier, wherever there is a difference, the line has been highlighted with a ●. 6128 owners can edit the program even quicker by typing AUTO 10, which will automatically call up each line in turn for you to edit if necessary. Note, however, that the auto method will only work up to line number 1160, as the numbering sequence has been changed thereafter to include future routines in the main adventure.

If you didn't type in the listing in issue 26, don't worry – just follow the instructions in the What You Have To Do box.

If you haven't been following the Pilgrim Programming course...

Don't worry. All the principles covered will be fully explained as we publish each module of the program over the next few months. We've covered some of the theory in the preceding articles, but the real fun starts now. By entering this listing, you take the first step to having a Basic adventure program that you can modify and build upon to create your own game. It couldn't be simpler!

Note to those who typed in the listing in issue 26: The numbering sequence changes after this line. Take special care when editing your existing listing.

Note to those who typed in the listing in issue 26. The variable OBJECT in this line was misprinted in the earlier version as OBJECTS. Make sure you omit the "S" this time, otherwise the program won't work.

Next month we'll enter a few more lines and delete this STOP command, to allow the program to continue.

These are the object descriptions (OBJECT$) as they will be printed by the program in its responses...

...and these are the object names (OBNAMES) as they might be typed in by the player. You can enter synonyms simply by entering a new word and tagging it with the number of the object you want it to refer to. So, to enter the synonym BOX for CHEST, you would first alter the number of OBNAMES in line 60 from 3 to 4. Then you would add a comma at the end of this line, followed by "box",2. We'll discuss program modification in greater detail next month.

Each direction can either be entered in full, NORTHEAST for example, or in abbreviated form – NE. As with objects, synonyms are created by adding the same direction code after each entry, so both SOUTH and S have the code 8 following.

In this game, the only way to move around is to type the direction, e.g. EAST, or SE. This means that if a direction is found in an input that has more than one word, then an error should be generated.

GUARANTEED!

This listing has been thoroughly checked for bugs and misprints.

```
●1150 direction=d: wordchecked=1
1160 NEXT d
1970 IF wordchecked=0 THEN PRINT #3, "I
don't understand ";CHR$(34);word$(x);
CHR$(34): oops=1
1980 NEXT x
1990 FOR x=1 TO (words-1): word$(x)=
"": NEXT x
2000 IF oops=0 THEN PRINT #6, "OK..." ELSE
GOTO 660
2010 STOP
5000 '
5010 REM data lists for objects,
characters, locations etc
5020 '
5030 DATA "a dirty handkerchief",1,128,
"a large chest",2,0
5100 DATA "the sitting room. There is a smell of
moth-balls and a large pile of dirty clothes in the
corner. The furniture is covered in dog hairs.",10
5110 DATA "the bedroom. The bed hasn't been
made and the whole room is even dirtier than the
sitting-room - if that is possible.",40
5500 DATA "get","drop"
5600 DATA "hanky",1,"handkerchief",1,"chest",2
5700 DATA
"north",128,"n",128,"northeast",64,"ne",
64,"east",32,"e",32,"southeast",16,"se",16,
"south",8,"s",8,"southwest",4,"sw",4,"west",
2,"w",2,"northwest",1,"nw",1
9940 RESTORE 9980
9950 FOR pk=HIMEM+1 TO HIMEM+6
9960 READ nn: POKE pk,nn
9970 NEXT pk
9980 DATA 62,0,205,12,187,201
9990 pk=HIMEM+2: cl=HIMEM+1
10000 RETURN
```

not one of the most earth-shattering games around.

"We don't have any more CPC titles on the cards at the moment," admitted Incentive boss Ian Andrew, "but there's no reason why we shouldn't in the future." So keep your fingers crossed.



☛ Rainbird

Well, no worries here at any rate. Rainbird are no longer publishing Level 9 games (for any machine) since the Austins left the Telecomsoft stable and signed up with new software house Mandarin (see last month's issue). However Magnetic Scrolls are still coming up with the goods and since their games are developed on a special system, there is no problem about converting them for the Amstrad machines.

The Pawn, *Guild of Thieves*, and *Jinxter* are all available. More titles are bound to appear in the next few months.

☛ Level 9

No worries here either. All Level 9's titles come out for a huge range of machines and the CPC is no exception. *Time and Magic* should be available as you read this, or soon after, and their new game *Lancelot*, based on the Arthurian legends, is on its way. Like Magnetic Scrolls, Level 9 use a special development system that reduces conversion costs for different formats, making the future of Amstrad titles relatively secure.

☛ Delta 4/Abstract Concepts

These two programming houses, run by Fergus McNeill and Anna Popkess respectively, are busy developing adventures on a new system developed for them by Tim Gilberts of Gilsoft fame. The system is profiled in this month's Rod and Staff Monthly – check it out for further details – and you can rest assured that it fully supports the CPC range. *Mindfighter* from Abstract Concepts should be out as you read this, and *Smirking Horror* from Delta 4 is not far off...

Being programming houses, you can never tell which label will be supporting Fergus' and Anna's releases, but expect to see more titles from Activision and CRL amongst others. Price range should be around the £9.99 level.

Rod & Staff Monthly

A Newsletter for Wanderers

Free to all Followers of the Straight and Narrow Path Issue 3

Edited by the Pilgrim. Price: Free to all Followers of the Straight and Narrow Path Issue 3

ABSTRACT CONCEPT-FIRM FUTURE

Mindfighter, the first release from programming house Abstract Concepts, is due for release by Activision as you read this.

The game concerns a psychic young boy, Robin, who falls into a trance and finds himself in post-World War III Southampton. Nuclear warfare has had an adverse effect on local living conditions and Robin is so distressed by what he finds that he resolves to return to present-day Southampton and prevent the conflict before it happens.

The game is the first using Abstract Concepts' new programming system, developed for them by Tim Gilberts of Gilsoft. Most significant features are:

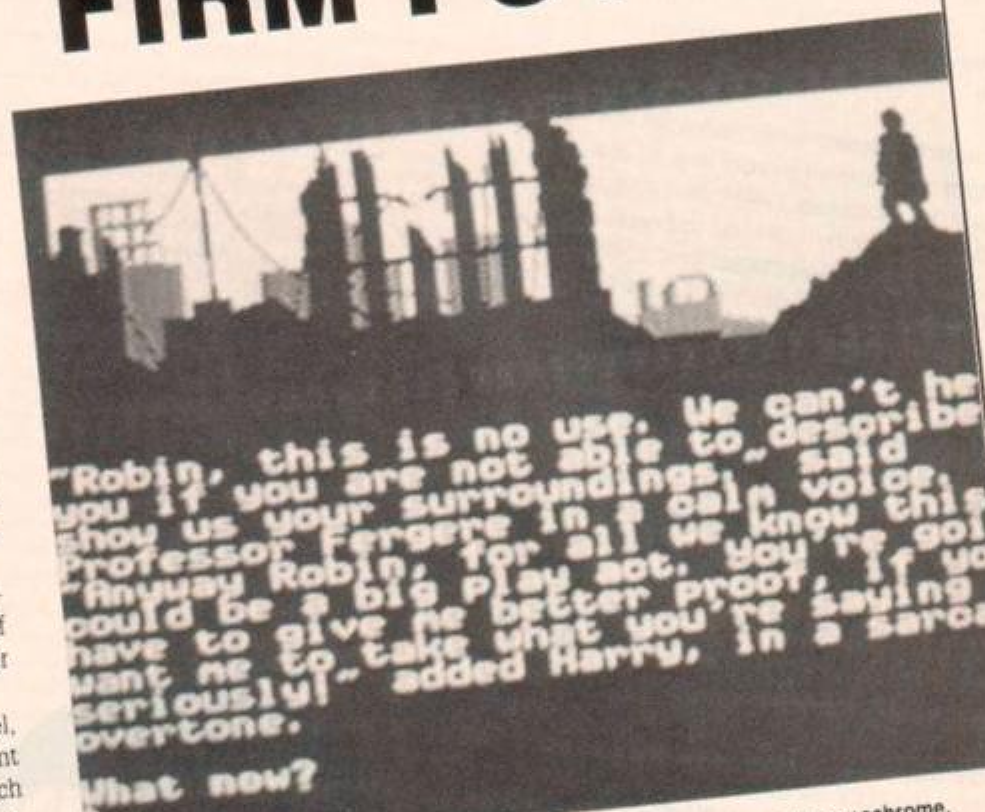
– autoplay, where the main character falls under computer control if you don't enter a command for over three minutes.

– icon driven control panel, which can be called up at any point from within the game to access such features as "scripting" (output to a printer), RAMSAVE and RAMRESTORE, and BOM (otherwise known as oops, or Back One Move).

– interactive characters that are under full computer control and can be communicated with by the player using the SAY TO name MESSAGE

– digitised graphics.

The Pilg has seen a preview copy of the game, which has quite a bit of well-written text and uses graphics particularly effectively to add atmosphere and authenticity.



One of the Atari ST graphics from Mindfighter – because the pictures are in monochrome, CPC screens will not be noticeably inferior, which makes a nice change...

TYPE-INS

More marvellous utility type-ins to make your micro move

Tester

Peter Shersby from Mablethorpe, Lincolnshire, has sent in a marvellous utility that will be of particular use to assembly language programmers. Tester will allow you to insert breakpoints in your code – that is, the instruction `RST 6` (`RST #3Ø`) or byte `&F7` – and display the state of the register. Very handy for debugging routines.



Once Tester has been installed simply load your own routine in memory and (with RST 6 instructions where ever you think they will be useful) when you are ready to test your routine, type `|TEST,addr`. The variable `addr` refers to the start address of your code. Every time an `RST 6` instruction is encountered the contents of the registers, program counter and stack are printed. Once the registers have been displayed you may press Esc to return to Basic or enter to continue with your program.

Should you need to send parameters to your routine, include these before the address: `|TEST,A$,B$,&6ØØØ` for example.

To see how Tester works type in and run the long listing (don't forget to save it), enter and run the short listing below, and finally type `|TEST,&4ØØØ`. After a beep the contents of the registers will appear on screen. Press return to continue.

```
1 ' Tester demo
1Ø FOR T=&4ØØØ to &4ØØ7:READ a$:POKE t,VAL("&"+a$):NEXT
2Ø DATA 3e,Ø7,cd,5a,bb,f7,c9,ØØ
```

```
1 ' Tester
2 ' by Peter Shersby
3 ' Amstrad Action  April 88
1Ø MEMORY &97FF:addr=&98ØØ:chk=Ø:li=11Ø
2Ø FOR f=1 TO 16:READ a$:POKE addr,VAL("&"+a$)
3Ø addr=addr+1:chk=chk+VAL("&"+a$):NEXT
4Ø READ a$:IF chk<>VAL("&"+a$) THEN PRINT"ERROR in ";li:END
5Ø chk=Ø:li=li+1Ø:IF li<35Ø THEN 2Ø
6Ø CALL &98ØØ:CLS:PRINT"SUBROUTINE TESTER INSTALLED":END
7Ø '
8Ø '
9Ø '
1ØØ DATA CD,ØC,98,21,73,99,Ø1,77,99,C3,D1,BC,Ø1,Ø3,ØØ,21,624
11Ø DATA 7Ø,99,11,3Ø,ØØ,ED,BØ,C9,ED,73,81,99,B7,CA,9C,98,8DF
12Ø DATA DD,66,Ø1,DD,6E,ØØ,DD,2B,DD,2B,3D,E9,FD,E5,DD,E5,969
13Ø DATA E5,D5,C5,F5,DD,21,ØØ,ØØ,DD,39,FD,21,56,99,Ø6,ØC,7A7
14Ø DATA DD,66,Ø1,DD,6E,ØØ,FD,74,Ø1,FD,75,ØØ,DD,23,DD,23,773
15Ø DATA FD,23,FD,23,1Ø,EA,21,C8,98,CD,9F,98,Ø6,ØC,DD,21,7CF
16Ø DATA 56,99,C5,DD,E5,DD,66,Ø1,DD,6E,ØØ,CD,A8,98,21,C5,8F8
17Ø DATA 98,CD,9F,98,DD,E1,C1,DD,23,DD,23,1Ø,E5,CD,ØØ,BB,998
18Ø DATA 3E,42,CD,1E,BB,2Ø,1Ø,3E,12,CD,1E,BB,28,EF,F1,C1,715
19Ø DATA D1,E1,DD,E1,FD,E1,C9,ED,7B,81,99,C9,21,3B,99,7E,AD5
2ØØ DATA B7,C8,CD,5A,BB,23,18,F7,7C,CD,AD,98,7D,F5,Ø6,Ø4,89D
21Ø DATA CB,3F,1Ø,FC,CD,BA,98,F1,E6,ØF,C6,3Ø,FE,3A,38,Ø2,883
22Ø DATA C6,Ø7,C3,5A,BB,ØA,ØD,ØØ,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,3BC
23Ø DATA 41,46,ØA,ØD,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,42,43,ØA,ØD,23A
24Ø DATA 2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,44,45,ØA,ØD,2Ø,2Ø,2Ø,2Ø,22Ø
25Ø DATA 2Ø,2Ø,2Ø,2Ø,48,4C,ØA,ØD,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,22B
26Ø DATA 49,58,ØA,ØD,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,49,59,ØA,ØD,271
27Ø DATA 2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,5Ø,43,ØA,ØD,2Ø,2Ø,2Ø,2Ø,22A
28Ø DATA 2Ø,2Ø,2Ø,2Ø,53,74,61,63,6B,2Ø,43,6F,6E,74,65,6E,4FD
29Ø DATA 74,73,ØD,ØB,ØB,ØB,ØB,ØB,ØB,ØB,ØØ,45,52,52,4F,52,2CB
3ØØ DATA 2Ø,2D,2Ø,4E,6F,2Ø,61,64,64,72,65,73,73,2Ø,67,69,52Ø
31Ø DATA 76,65,6E,ØD,ØA,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,16Ø
32Ø DATA ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØ,ØØØ
33Ø DATA C3,2C,98,ØØ,ØØ,ØØ,ØØ,7C,99,C3,18,98,54,45,53,D4,5CF
```

Keywords

Fed up of typing in lengthy Basic command words? Do listings take an age to enter? **D Lacey** from Kingswood in Bristol has come up with the perfect solution: rather than using standard Basic commands like `LIST` and `NEXT`, Mr Lacey has fiddled with the CPC's operating system so that it is now possible to use commands such as `L.` and `N.`

The program intercepts the Basic vector, EDIT, which is found at a different location in each version of the Amstrad computer. After running the program, 664 users type `POKE &A2Ø1,&5B:CALL &A2ØØ`. 6128 users enter `POKE &A2Ø1,&5E:CALL &A2ØØ`. If you have the 464 simply type `CALL &A2ØØ` to install the Keywords. Two bar commands are introduced to the system: `|KWS.ON`, `|KWS.OFF`. Appropriately |KWS.ON switches on the keywords and |KWS.OFF switches them off. Note the following points:

Commands and keyword abbreviations

AUTO	a.	AFTER	af.	BORDER	b.	BIN$(	bi.		
CONT	c.	CALL	ca.	CLEAR	cl.	CLOSEOUT	clo.		
CHR$(	ch.	DATA	d.	DRAW	dr.	DEFINT	de.		
DEFREAL	defr.	DELETE	del.	ELSE	e.	EDIT	ed.		
EVERY	ev.	ERASE	er.	FOR	f.	FRE("")	fr.		
GOSUB	g.	HIMEM	h.	HEX$(	he.	INKEY	i.		
INPUT	inp.	INSTR(	ins.	JOY(	j.	KEY	k.		
LIST	l.	LOCATE	lo.	LEFT$(	le.	LOWER$(	low.		
MODE	m.	MEMORY	me.	MERGE"	mer.	NEXT	n.		
ORIGIN	o.	OPENOUT"	op.	PLOT	p.	PAPER	pa.		
RESTORE	res.	RELEASE	rel.	RANDOMIZE	ra.	RIGHT$(	ri.		
ROUND(	ro.	SYMBOL	s.	STRING$(	st.	SOUND	so.		
USING"	u.	UPPER$(	up.	VAL(	v.	VPOS(#	vp.		
WINDOW	w.	WHILE	wh.	WIDTH	wid.	WRITE	wr.		
XPOS	x.	YPOS	y.	ZONE	z.				

- The program doesn't change bar commands or anything inside quotes.
- Take care when naming variables. For example, `hi.score` would become `HIMEMscore`. Either leave out full stops in variable names or change them for the underline symbol.
- Upper and lower case abbreviations are treated the same.
- Avoid entering long lines as the expanded version may be more than 255 characters – this could upset the system.
- Use `|KWS.OFF` before an `INPUT` command, and `|KWS.ON` after.
- The full stop in a keyword replaces a space, bracket and quote mark in many instances: `PRINT ch.45)` and `op.dummy"` for example.

```
1 ' Keywords
2 ' by D Lacey
3 ' Amstrad Action  April 88
```

```
10 SYMBOL AFTER 256:MEMORY &A1FF:SYMBOL AFTER 240
20 a=&A200:v=120:FOR n=1 TO 39:READ a$:c=0
30 FOR m=1 TO 20:b=VAL("&"+LEFT$(a$,2)):POKE a,b
40 c=(c+1)XOR b:a=a+1:a$=MID$(a$,3):NEXT:READ a$
50 IF c<>VAL("&"+a$)THEN PRINT"Error in line"v:END
60 v=v+10:NEXT
70 PRINT"664 users : POKE &A201,&5B"
80 PRINT"6128 users : POKE &A201,&5E"
90 PRINT"CALL &A200 to install RSX's"
100 PRINT"|KWS.ON"
110 PRINT"|KWS.OFF"
120 DATA 213ABD224AA21147A2010300EDB0214CA20117A2,BE
130 DATA C3D1BC1FA2C32DA2C33AA24B57532E4FCE4B5753,91
140 DATA 2E4F46C6002A4AA236C3231150A2732372C9ED5B,95
150 DATA 4AA22147A2010300EDB0C9000000000000000000,C6
160 DATA 226EA37EFE002813D511FBA4EDA07EFE0020F9ED,3C
170 DATA A021FBA4D1180521FBA43600CD47A2D5C5F5ED5B,FB
180 DATA 6EA321FBA47EFE00283CFE7C280CFE222825FE2E,9A
190 DATA 2838EDA018EBEDA07EFE002825FE2E28F5FE4138,DA
200 DATA E5FE7B30DDFE5B38E9FE6130E518D7EDA07EFE00,4D
210 DATA 2808FE2220F5EDA018BF12F1C1D12A6EA3C9EDA0,57
220 DATA 1B1B1ACD0AA3300413131 8A91B1ACD0AA330F913,4C
230 DATA E52A6EA3A7ED523804ED5B6EA3CD18A32811CB7E,B5
240 DATA 2004EDA018F87EE67F1213E1C37DA2E1131AFE2E,A4
250 DATA 20FA13C37DA2FE41D8FE7B3FD8FE61D0FE5B3FC9,BE
260 DATA 210000226AA32171A3ED536CA3ED5B6CA31ABE28,A3
270 DATA 1AF620BE281523CB7E28FB237EFE0020E82A6AA3,9A
280 DATA ED5B6CA37CB5C9131AFE2E2810CB7E20E6231ABE,90
290 DATA 28F1F620BE28EC18D5CB7E20032B18F923226AA3,5E
300 DATA 18D3000000000000806175746FA06166746572A0,3A
310 DATA 626F72646572A062696E24A8636F6EF463616C6C,CD
320 DATA A0636C6561F2636C6F73656F75F463687224A864,5C
330 DATA 617461A064726177A0646566696E74A064656672,DF
340 DATA 65616CA064656C657465A0656C7365A065646974,FE
350 DATA A06576657279A06572617365A0666F72A0667265,3
360 DATA 282222A9676F737562A068696D65ED68657824A8,4A
370 DATA 696E6B65F9696E7075F4696E737472A86A6F79A8,1EE
380 DATA 6B6579A06C697374A06C6F63617465A06C656674,2A
390 DATA 24A86C6F77657224A86D6F6465A06D656D6F7279,CB
400 DATA A06D65726765A26E6578F46F726967696EA06F70,1B8
410 DATA 656E6F7574A2706C6F74A0706170706572A0706F6B,C6
420 DATA 65A07065656BA872656E756DA07265747572EE72,6B
430 DATA 6573746F7265A072656C65617365A072616E646F,EF
440 DATA 6D697A65A0726967687424A8726F756E64A87379,5B
450 DATA 6D626F6CA0737472696E6724A8736F756E64A073,67
460 DATA 7061636524A87468656EA074657374A87461676F,FF
470 DATA 66E67573696E67A2757070657224A876616CA876,21
480 DATA 706F7328A377696E646FF77768696C65A0776964,FC
490 DATA 7468A07772697465A07870 6FF37970 6FF37A6F6E,69
500 DATA 65A0000000000000000000000000000000000000,D7
```

One-line Entertainer

Shabaz Yousaf from Slough, Berkshire, has sent in a very clever one-liner that manages a faithful rendition of the Entertainer.

To compose your own tunes simply alter the data held in **a$**. The @ sign acts as a pause.

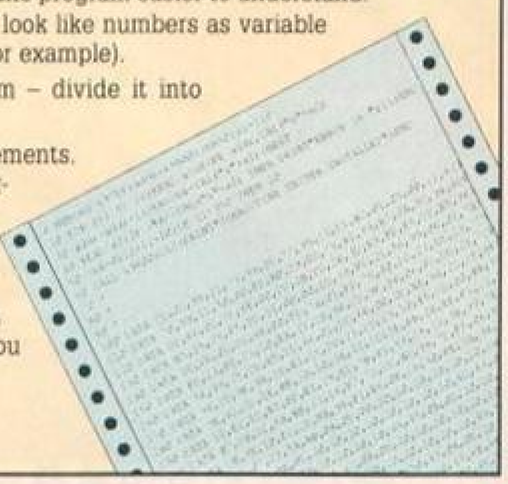
```
1 ' One-line Entertainer
2 ' by Shabaz Yousaf
3 ' Amstrad Action  April 88
10 a$="ABCH@CH@CH@@HIJKHIK@GI@H@@ABCH@CH@CH@@FEDFHK@IGFI@@
   ABCH@CH@CH@@HIJKHIK@GI@H@@HIJKHIK@HI@KHIK@HI@KHIK@GI@H"
   :DIM a(11):FOR i=1 TO 11:READ a(i):NEXT:FOR i=1 TO 105:
   SOUND 1,a(ASC(MID$(a$,i,1))-64):NEXT:DATA 319,301,284,
   253,239,213,190,179,159,150,142
```

Fame and fortune

Interested? Yes? Well, if you send us your programming masterpieces and they subsequently get published in these pages, you could stand to win £100. And your name would be seen by thousands of Amstrad addicts. What more could you ask for? Every person whose listing appears in the Type-Ins section is guaranteed anything from £10 to £100. What's the catch? None. We simply want your listings. Send them – together with your name, address and a jiffy bag (for return) – to **"Type-Ins", Amstrad Action, Future Publishing Ltd, 4 Queen Street, Bath, BA1 1EJ.**

If you plan to send a listing to be considered for publication, here are a few pointers:

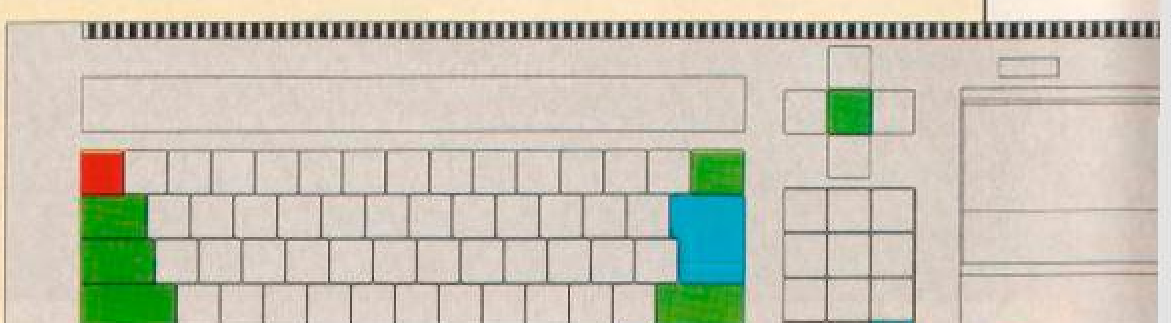
- Make sure it's your own original, unpublished work.
- Use lower-case rather than capitals for variable names.
- REM statements make the program easier to understand.
- Do not use letters that look like numbers as variable names (O and Ø, l and 1 for example).
- Structure your program – divide it into sensible procedures.
- Avoid long multi-statements. Short lines make debugging easier.
- Please make sure your name and address is on every slip of paper, cassette or disk that you send us

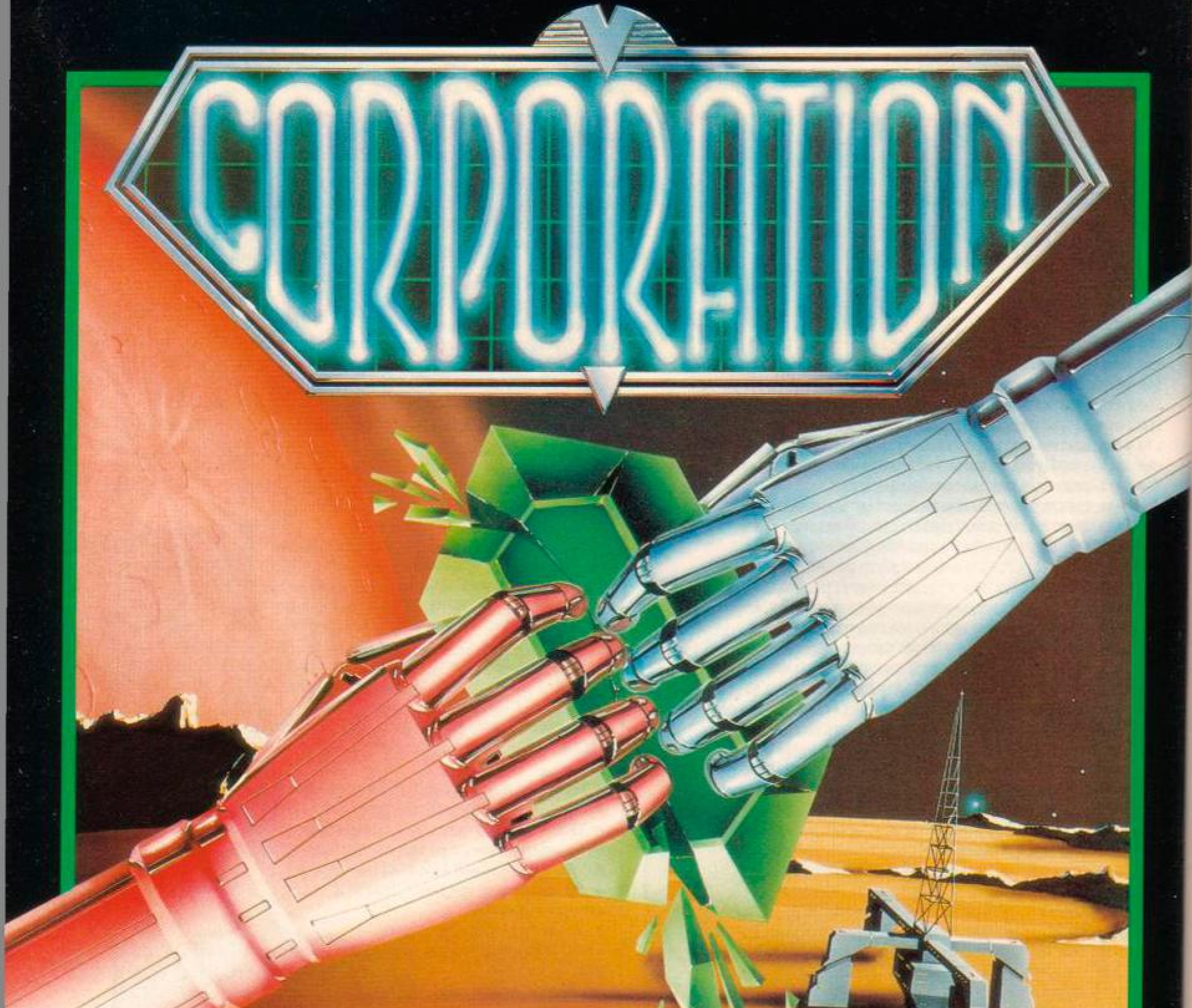


Keysave

This short listing from **Alastair Scott** in Grangemouth allows you to save function-key definitions as a binary file. When you have defined the function keys to your liking simply run Alastair's routine. It will save a file called **KEYS.BIN** to either cassette or disk. Whenever you want to load the key definitions without destroying Basic or using up memory, enter **LOAD "KEYS"** – yes, it is that easy.

```
1 ' Keysave
2 ' by Alastair Scott
3 ' Amstrad Action  April 88
10 CLS:DEFINT a-z:st=0:fi=0
20 FOR a=64 TO 85:READ b$:POKE a,VAL("&"+b$):NEXT
30 POKE 74,128:CALL 64,@st:POKE 74,159:CALL 64,@fi
40 SAVE "keys.bin",b,st,fi-st
50 DATA 3d,c0,dd,6e,00,dd,66,01,e5,3e,80
60 DATA 2e,00,cd,12,bb,e1,1b,73,23,72,c9
```

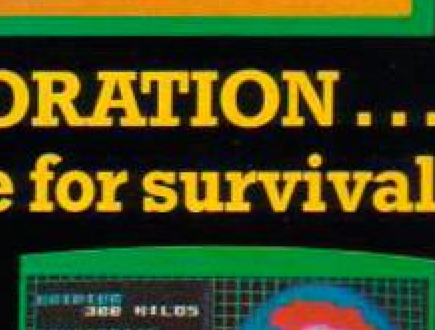




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ACTIVISION.

Mail Order: Activision (UK) Ltd., Units 3 & 4 Lloyds Close, Finedon Road Industrial Estate, Northampton NN8 4SR. Tel: 0933 76768.

Commodore programming by Daryl Bowers. Spectrum and Amstrad programming by Simon Freeman. Graphics by Focus.

Gauss

With exam time rapidly approaching, many of you will find this computerised method for solving simultaneous equations very useful. Any number of unknowns may be found in this faithful reproduction of the Gauss-Jordan elimination method. **Stuart McColl** from Easthall in Glasgow is the man to thank.

The routine will easily solve:

```
2x1 + 4x2 + 6x3 = 18
4x1 + 5x2 + 6x3 = 24
3x1 +  x2 - 2x3 =  4
```

When run, Gauss will prompt you for the number of equations you wish to solve (for the above this would be 3). Next you are asked for the number of variables (again, from the example, this would be 3). Note that the program only uses positional coefficients – it doesn't matter whether the equation reads `2x1 + 4x2 + 6x3 = 18` or `2x + 4y + 6z = 18`; the only input required is 2, 4, 6 and 8 (separated by a tap of the return key).

Gauss works by implementing elementary row operations:

1. Reduce coefficient of x1 to 1 in equation one.
2. Eliminate x1 from all other equations by multiplying equation one and adding it to the others.
3. Repeat this for x2, x3 and so on.

If the resultant matrix is the identity matrix, I, the system has a unique solution. The result for the earlier example would be printed as:

```
1  Ø  Ø  4
Ø  1  Ø -2
Ø  Ø  1  3
```

The first three columns in this example have indeed been reduced to the identity matrix for a three by three system. This signifies that a unique solution exists. Each row is a reduced equation which is equivalent to the initial equations. The results are read as:

```
x1 + ØØ + ØØ =  4
ØØ + x2 + ØØ = -2
ØØ + ØØ + x3 =  3
```

If no unique solution exists the results may be of the form:

```
x1 + 2x2 + ØØ = 11Ø
ØØ +  x2 + x3 =  9Ø
```

This can be rearranged to give one variable in the shape of another. The solutions to this example are x1 = 11Ø - 2x2, x2 = 9Ø - x3, x3.

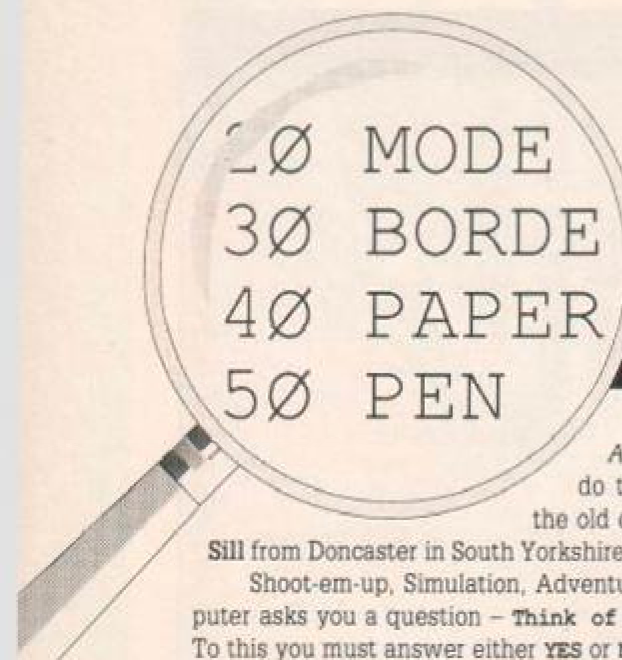
```
1 ' Gauss
2 ' by Stuart McColl
3 ' Amstrad Action  April 88
1Ø MODE 2:INK 1,Ø:INK Ø,13:BORDER 1Ø
2Ø PRINT "GAUSS JORDAN ELIMINATION.":PRINT
3Ø PRINT "A unique and simple method of solving any number ";
4Ø PRINT "of simultaneous equations,"
5Ø PRINT "consisting of any number of variables.":PRINT
6Ø '
7Ø ' Initialise variables and get positional
8Ø '       coefficients of each.
9Ø '
1ØØ INPUT "Number of equations:",equnum
11Ø INPUT "Number of variables:",varnum
12Ø DIM a(equnum,varnum+1)
13Ø FOR loop = 1 TO varnum
14Ø LOCATE (7+loop*6),9
15Ø a$="x"+MID$(STR$(loop),2):PRINT a$;
16Ø NEXT
17Ø PRINT"        Answer"
18Ø FOR loop = 1 TO equnum
19Ø PRINT "Equation";loop;":";
2ØØ FOR inner = 1 TO varnum + 1
21Ø INPUT ;"",a(loop,inner):PRINT TAB (13+6*inner)
22Ø IF inner = varnum THEN PRINT"=  ";
23Ø NEXT inner
24Ø LOCATE 1,loop+1Ø
25Ø NEXT loop
26Ø '
27Ø ' Reduce each row of the augmented matrix to
28Ø '             row echelon form.
29Ø '
3ØØ IF varnum > equnum THEN maximum = equnum ELSE maximum =
varnum
31Ø FOR row = 1 TO maximum
32Ø col = row
33Ø temp = a(row,col)
34Ø IF temp = Ø THEN 44Ø
35Ø FOR loop = 1 TO varnum + 1
36Ø a(row,loop) = a(row,loop) / temp
37Ø NEXT
38Ø FOR loop = 1 TO equnum
39Ø IF loop = row THEN 43Ø
4ØØ FOR inner = varnum + 1 TO 1 STEP -1
41Ø a(loop,inner) = a(loop,inner) + (-(a(loop,col)) *
a(row,inner))
42Ø NEXT inner
43Ø NEXT loop
44Ø NEXT row
45Ø '
46Ø ' Display the reduced equations in the same
47Ø '       format as they were entered.
48Ø '
49Ø PRINT
5ØØ FOR loop = 1 TO equnum
51Ø FOR inner = 1 TO varnum + 1
52Ø PRINT TAB (6 + 6 * inner);
53Ø IF inner = varnum + 1 THEN PRINT" = ";
54Ø PRINT ROUND (a(loop,inner),2);
55Ø NEXT inner
56Ø PRINT
57Ø NEXT loop
58Ø PRINT:PRINT"Again ?"
59Ø a$=UPPER$(INKEY$)
6ØØ IF a$="Y" THEN RUN ELSE IF a$<>"N" THEN 59Ø
```

SmArt

Or not so smart as the case may be. Unfortunately Robert Buckley's graphics package, published in issue 29, had a small mistake. Line 194Ø had bits hacked off; replace it with the line printed below:

```
194Ø IF TEST(S+2,Y) <> A THEN PRINT CHR$(23);CHR$(1);:TAG
X=X-4:Y=Y+4:GOSUB 2ØØØ:RETURN
```





Program made plain

Discover a program's secrets: how it works, improvements that can be made and techniques worth remembering.

Shoot-em-up, Simulation, Adventure

Remember Amsoft's old game *Animal, Vegetable, Mineral?* If you do then you'll know it's a version of the old classic, Twenty Questions. **Adrian Sill** from Doncaster in South Yorkshire has written a similar game.

Shoot-em-up, Simulation, Adventure is simple in concept: the computer asks you a question – `Think of a game... Is it Leaderboard?` To this you must answer either `YES` or `NO`. If your reply is yes the computer will congratulate itself and start again. However, if your answer is negative the computer will ask you to enter the name of the game you thought of. After this you will be asked to input a question that differentiates the game you thought of and the game the computer printed on screen.

Adrian's game learns as you play. The longer you play, the more intelligent it becomes.

The right stuff

```
1 ' Shoot-em-up, Simulation, Adventure
2 ' Adrian Sill
3 ' Amstrad Action  April 88
1Ø '++++++++++ SET UP ++++++++++
2Ø DIM GAMES$(3ØØØ):GAMES$(1)="LEADERBOARD"
3Ø MODE 1:BORDER Ø:INK Ø,Ø:INK 1,24:INK 2,6:INK 3,18
4Ø PAPER Ø:PEN 2:N=1:PRINT CHR$(22);CHR$(1):B=1
```

Line 2Ø reserves space for the various game names and game questions. It does this by dimensioning an array with the `DIM` command. The format of the command is `DIM name (number)`. In this case the name is `GAMES$` and the maximum number of entries is 3ØØ1 (remember arrays are numbered from Ø upwards). Note that if an array is not dimensioned the maximum number of entries will default to 1Ø.

Mode and colours are set in line 3Ø. The first command, `MODE 1`, tells the computer the resolution that it is to work at. `MODE 1` allows 4Ø columns of text per line, 4 colours on screen at once and has a pixel (individual dot) resolution of 32Ø by 2ØØ.

The method in which `PEN`s and `INK`s work is confusing. Mode 1 has four `PEN`s with which you can write: `PEN Ø`, `PEN 1`, `PEN 2` and `PEN 3`. Each `PEN` can be filled with any one of 27 colours. The colours are changed by using `INK`. For instance, to change the colour held in `PEN 1` you would use `INK 1,colour` where `colour` can be any number between Ø and 26. The colours which correspond to the values can be found on the disk drive casing of the 664 and 6128 or the back of the 464 instruction manual.

Notice the instructions `PRINT CHR$(22);CHR$(1)` in line 4Ø; this string of commands is used to switch on overwrite mode. For example, if you print an x on screen and then print an l on top of it, the x will not be destroyed. The result is an odd looking symbol. To switch this effect off use `PRINT CHR$(22);CHR$(1)`.

Overwrite mode

Lines 6Ø to 1ØØ use this overwrite feature to good effect. First character 233 is printed, on top of this goes character 2ØØ, and last of all goes symbol 144. An interesting pattern is thus produced.

```
5Ø ' ++++++++++ FANCY LINES ++++++++++
6Ø FOR A=1 TO 4Ø
7Ø PEN 1:LOCATE A,B:PRINT CHR$(233)
8Ø PEN 2:LOCATE A,B:PRINT CHR$(2ØØ)
9Ø PEN 3:LOCATE A,B:PRINT CHR$(144)
1ØØ NEXT A
11Ø IF B=5 THEN GOTO 13Ø
12Ø B=5:GOTO 6Ø
13Ø LOCATE 1,3:PEN 2:PRINT CHR$(22);CHR$(Ø);
14Ø PRINT "            THE GAME OF GAMES"
15Ø WINDOW 3,37,6,22:'PLAYING AREA
```

A section of the screen is cordoned off (or split into a window) by using the `WINDOW` command. Line 15Ø shows a good example of this. The instruction follows the format `WINDOW stream, left, right, top, bottom`. The CPC has a total of 1Ø streams. Streams Ø to 7 are used for the screen, stream 8 is used in conjunction with the printer and stream 9 is for loading and saving data. Adrian has not specified a stream number in line 15Ø – in this case the stream simply defaults to zero. The other values following `WINDOW` refer to its positioning on the screen: between columns 3 and 37, and from rows 6 to 26.

Shall we play a game

```
16Ø ' ++++++++++ START ++++++++++
17Ø FOR A=1 TO 1ØØØ:NEXT A
18Ø CLS
19Ø PEN 3
2ØØ PRINT:PRINT "Think of a computer game..."
21Ø FOR A=1 TO 1ØØØ:NEXT A:PEN 1
22Ø IF GAMES$(2*N)<>"" THEN GOTO 33Ø
23Ø PRINT:PRINT "Is it ";GAMES$(N)
24Ø INPUT B$:B$=UPPER$(B$)
25Ø IF B$="YES" OR B$="Y" THEN PEN 1:PRINT:PRINT"I got one
    correct - phew! ":GOTO 16Ø
26Ø GAMES$(2*N)=GAMES$(N)
27Ø PRINT:INPUT "Then what is it";g$:GAMES$(2*N+1)=UPPER$(g$)
28Ø PEN 1:PRINT:PRINT "Give me a question that would
    be""true for ";:PEN 2
29Ø PRINT GAMES$(2*N+1);:PEN 1:PRINT",";
```

Following the input command in line 24Ø is the expression `B$=UPPER$(B$)`. This converts your input, held in `B$`, into uppercase characters. The use for this may not be obvious at first, but one advantage is not having to test for various combinations of case. Line 25Ø demonstrates this: `B$` is only tested for `YES` and `Y` rather than `YES`, `yes`, `Yes`, `yES` and so on.

```
3ØØ PRINT" but false for ";:PEN 2:PRINT GAMES$(2*N)
31Ø INPUT GAMES$(N)
32Ø GOTO 3Ø
33Ø PRINT:PRINT GAMES$(N);
34Ø INPUT B$:N=2*N+ABS(B$="YES")
35Ø IF N<>256 THEN GOTO 22Ø
36Ø PRINT "I've had enough I quit!":END
```

Notice the very interesting command structure in line 34Ø: `N=2*N+ABS(B$="YES")`. The variable `N` is incremented depending on the contents of `B$`. `ABS`, by definition, returns the absolute value of a given expression. It is usually used to turn negative numbers into positive values. Adrian has used `ABS` to return either 1 or Ø depending on the contents of `B$`. In other words `IF B$="YES" THEN N=2*N+1` and `IF B$<>"YES" THEN N=2*N+Ø` – very clever.

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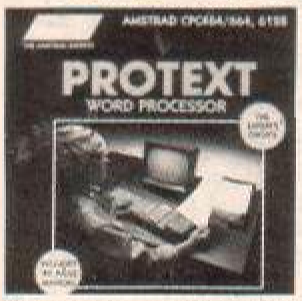
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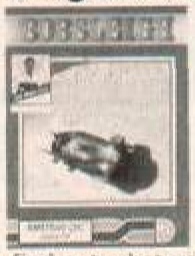
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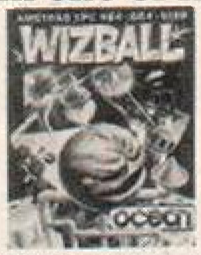
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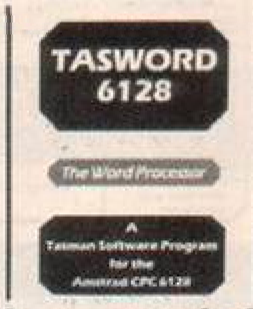












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....

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The AA Buyers Guide
Top 50 Games

Every month from now on we'll be printing a two-page buyers guide to an aspect of CPC computing. This month we're starting with our top 50 games. In coming issues we'll be dealing with all sorts of subjects from printers to peripherals, word-processors to books. The guides will be updated each time they appear.

For each game we've tried to track down whether it has been re-released on a compilation or as a budget game, because obviously these offer much better value for money. Where this is the case we haven't mentioned the original supplier.

Except for the most recent games it is probably worth shopping around for the best price from computer stores, mail-order firms or our own special **offers pages.**

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£9.95 cass, £14.95 disk
Intriguing puzzles to solve combined with wonderful graphics. Dexter and his podocephalus sidekick demonstrate graphics and gameplay at their best. Two great games from across the channel for the price of one.

GRYZOR
Ocean
£8.95 cass, £14.95 disk
A variety of weapons can be picked up to help you blast away at your enemies, in this horizontal scrolling shoot-em-up. Two different stages to the game, each needing different tactics.

HEAD OVER HEELS
Ocean – Magnificent 7
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Rack It
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The juvenile terrorist indulges in all sorts of nefarious activities in order to maximise his naughtyometer rating. Delightful cartoon graphics accompany.

KNIGHTLORE
Ricochet
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The grand-daddy of all isometric 3D games, where you try to rid yourself of the curse of lycanthropy. Still

plays superbly even today.

LIGHTFORCE
Elite – Hit Pak vol. 2
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Fast vertically scrolling landscapes with colourful graphics and zappy sound effects. Still one of the best shoot-em-ups around.

LORDS OF MIDNIGHT
Amsoft
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MAG MAX
Imagine
£8.95 cass, £14.95 disk
A classic coin-op conversion guaranteed to give you hand cramps. A horizontal scrolling shoot-em-up with slick graphics, weapon collection and tremendous difficulty.

MARSPORT
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Wander the streets of the Mars base solving problems and blasting away at Sept warriors with your laser gun. Gargoyle puzzling at its trickiest.

MERCENARY
Novagen
£9.95 cass, £17.95 disk
A 3D vector graphic adventure in which you try to escape from the planet of Targ. The second city is available on disk and soon on cassette.

MATCHDAY II
Ocean
£8.95 cass, £14.95 disk
A football game with loads of options and tactics that you can use. Up to eight people can play too. Not to mention the great graphics and crowd pleasing action.



POWERPLAY
Arcana
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RANARAMA
Hewson – Four Smash Hits
£9.95 cass, £14.95 disk
A *Gauntlet* type game only this time you're a frog exploring a huge network of passages. Hordes of monsters and spells as you quest to turn yourself back.

REBELSTAR
Firebird
£1.99 cass, £4.99 disk
A one or two player strategy game set in the far future with you in control of a mixed army of droids and humans. Try to defend or attack a base.

RED L.E.D.
Ariolasoft
£9.99 cass, £14.99 disk
Three droids with different abilities trying to make a path across a grid of hexagons from left to right. Each hexagon contains a landscape full of difficulties and danger.

RENEGADE
Imagine
£8.95 cass, £14.95 disk
Mindless bash-em-up with five levels to kick and punch your way through. Wonderful graphics and animation make this a combat classic.

REVOLUTION
Beau Jolly – Comp Hits 10 vol. 4
£9.95 cass, £13.95 disk
Vortex get in on the bouncing ball theme with some wicked puzzles that test joystick skill to the full.

SENTINEL
Firebird
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SORCERY +
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SPACE HARRIER
Elite
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Action so fast that if you blink you'll miss it. Fast reflexes are essential as you whizz across the surface of many weird alien planets.

MAGIC KNGIHT TRILOGY
Mastertronic (MAD)
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SPINDIZZY
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STARGLIDER
Rainbird
£14.95 cass, £19.95 disk
A vector graphic shoot-em-up with speed, addiction and difficulty. Overwhelming odds confront you but skilled pilots accept the challenge.

TAU CETI
Beau Jolly – Five Star Games III
£9.95 cass, £14.95 disk
Collect fuel rods as you strive to shut down a nuclear reactor. Battle the planet's defences until all the rods are yours and you can shut the planet down. Also watch out for *Academy*, a brilliant sequel costing £9.95 cass, £14.95 disk, from CRL.

THANATOS
Elite – Top 10 Collection
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THEATRE EUROPE
PSS
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THRUST
Firebird
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Retrieve the pods with your asteroids style space ship, blow the reactor up and fly away from the planet in this game of blasting and manoeuvering. Gameplay that's truly out of this world.

TOMAHAWK
Digital Integration
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Brilliant flight simulator that puts you in the pilots seat of an Apache helicopter. Fly dangerous missions and enjoy those lovely graphics.

WIZBALL
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Six levels to explore as you try to restore colour to the landscapes with your faithful servant Catelite. Wacky control and graphics that get better the better you do.



WORLD CLASS LEADERBOARD
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ZOIDS
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£8.95 cass, £14.95 disk
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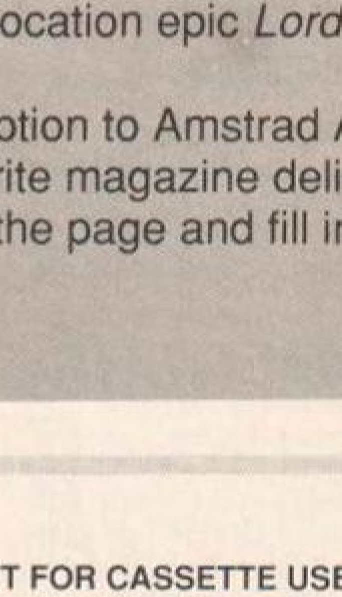
As if one free game wasn't enough, here's another: a free copy on cassette of the huge, multi-character epic *Doomdark's Revenge*. This Mastergame from Beyond, by top programmer Mike Singleton, got an AA Rating of 95% in issue 13 of Amstrad Action. It's still a classic offering hours of special entertainment with over 6,000 locations to discover. Set in an immense, beautifully depicted landscape you control three out of a possible total of 128 characters.

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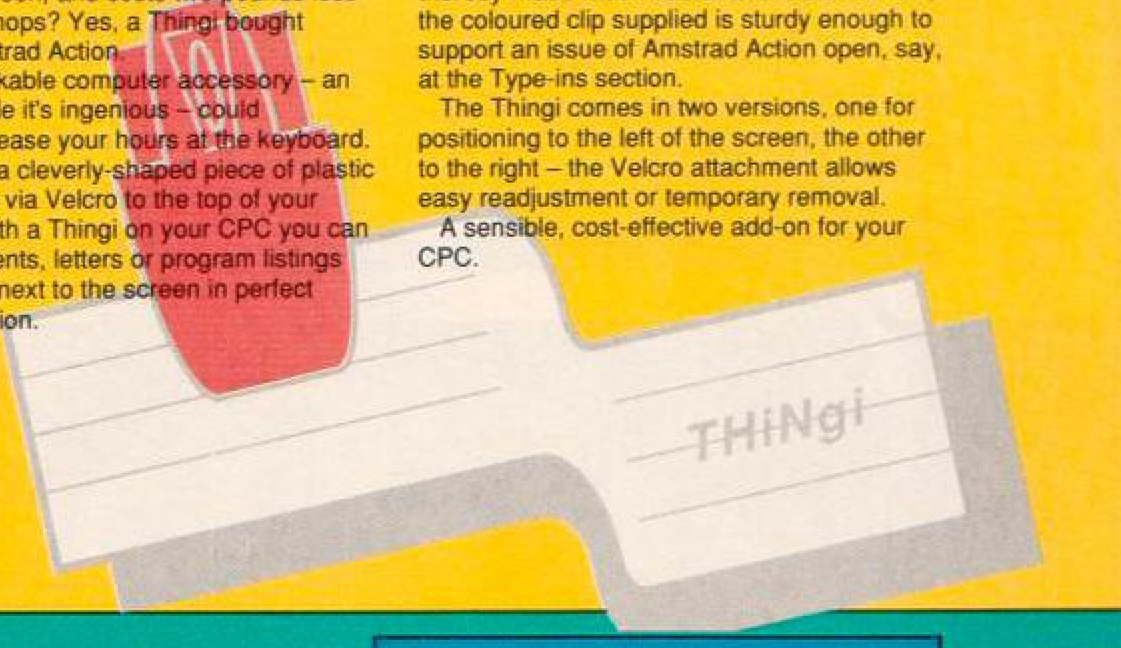
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REAR VIEW

A sideways look at the world of computing, plus Sugarman!

Bottom 10

Here are the 10 computer game titles voted least likely to outsell Out Run in 1988. Compiled by the Department of Fibs, Falsehoods and Royal Pregnancies.

1. Tummy Run
2. Combat Creche
3. Advanced Tactical Pacifist
4. Flying Guppy
5. Grass Growing Simulator
6. Deathwish XXXVII
7. World Class Tiddlywinks
8. They Stiffed the First Time Round III
9. Roland on the Dole
10. The Hitch-hikers Guide to Chipping Ongar

Horoscope

AA's monthly honest horoscope for CPC users



Aries (Mar 21–Apr 19)

You are under the mistaken belief that you were born under the sign of the Random Access Memory. This has warped your whole life and led you to form close personal relationships with an RS232 interface.

You consider yourself a born games-player and are absolutely intolerable during two-player games. You're the sort of person that would play *Roland on the Run* for 24 hours for a 20p bet.



Gold Get Rhythm

The folks at US Gold obviously want us to think they're a really hip crew. Their latest piece of promotional material includes this shot of the whole team strutting their funky stuff. Fortunately the record that accompanied it was cardboard.




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